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AN OUTLINE FOR RURAL DEVELOPMENT IN ALBERTA'S CENSUS DIVISION 12

RURAL DEVELOPMENT
RESEARCH BRANCH
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THE B - 12 PLAN

An Outline For Rural Development
In Alberta's Census Division 12

the

Rural Development Research Branch,
Economics Division,
Alberta Department of Agriculture
V. T. Janssen - Director

Resource Study No. 884-4

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RURAL DEVELOPMENT RESEARCH BRANCH

PREFACE

In Alberta economic and social development has always been a major goal of the people. Ever since the original settlers entered the territory great efforts were made to obtain a living from the natural resources which were in existence. Labour, capital and management were combined with raw resources of the land to provide constantly improved levels of living to the residents. As economic development took place over the years, social amenities such as churches, schools, and recreation facilities were also developed. Throughout this process, some areas of the province advanced more rapidly than others. In some instances the development was erratic with "booms and busts" as various resources were exploited, new demands expanded and improved technology developed. In accordance with the location of resources and related processing and marketing, some degree of specialized production was noticeable in these areas. This overall socio-economic development was largely self-generated by the local people and the role of government was to provide a framework which permitted maximum progress.

By the 1960's wide variation in the levels of income and employment opportunities existed between areas within Alberta as well as throughout Canada. Resources were not being utilized at optimum levels, considerable waste was occurring in soil and water management and the resulting heterogeneous pattern of socio-economic development suggested the need for a more comprehensive program to be established. It was recognized that a more active role of the local people as well as all levels of government would be necessary to achieve the objectives in this sphere. This situation was highlighted by a national conference in 1961 on Resources For Tomorrow. Papers at this meeting, delivered by authorities in the field, emphasized the gap between potential and actual accomplishments.

Culmination of the attention on the subject resulted in the Federal Agricultural Rehabilitation and Development Act of 1961. This legislation provided for joint Federal-Provincial operations and financing of programs in research, resource use and socio-economic development in rural areas. The philosophy of the act was to place government in a more active role to help the people of interested areas improve their level of living. Under the Rural Development section of the Act, opportunity was given for government to help local people inventory their resources, analyze their own situations and outline possible methods of improving income and employment opportunities.

Local people in Alberta Census Division 12 (the St. Paul, Bonnyville, Lac La Biche, Smoky Lake area) requested this kind of assistance. As a result the area became the Alberta pilot project in comprehensive "Rural Development". Here the local people in committees and through their own existing organizations will review their circumstances and study areas of potential development. To assist in this work the Rural Development Research Branch, Economics Division, Alberta Department of Agriculture was requested to inventory the resources of the area, analyze the existing conditions and suggest potentials for socio-economic development.

A series of bulletins were published prior to this report, each consisting of statistical data gathered largely from secondary sources of various sectors of the economy. These bulletins were used as working documents for the preparation of this volume by both ourselves and by local agencies which gave counsel and advise. This report supplements the data in previously published bulletins and contains additional information relative to analysis of social and economic adjustments in the past, projections for the future and an estimate of the social capital required to bring about further adjustments as identified. No attempt was made to calculate the amount of private capital that would be invested in the area with the exception of agriculture and housing. These two sectors were included because a considerable amount of the capital for them comes from Crown corporations or government agencies. Among these institutions are Central Mortgaging and Housing Corporation, Alberta Commercial Corporation, Farm Credit Corporation and the Alberta Farm Purchase Board.

Considerable discussion went into the naming of this document and finally the "B-12 Plan" was selected. It is intended to be an abbreviation for building Census Division 12, which in a broad sense alludes to inventory, analysis, projections, and suggestions for action.

It is hoped that this report will be useful to agencies working with local people in the area and to various government departments in formulating regional policies. Information contained herein will probably be supplemented with further study in certain areas and the projections modified by other factors as experience and policy dictates.

Knud Elgaard, Assistant Director
Economics Division

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Approximately one third of this volume was the result of deliberations of the entire staff of the Branch. This somewhat unconventional, though necessary method, (a multilinear approach) necessitated the following, unconventional format for attributing authorship. Where no authorship is indicated, the reader should understand that those sections of the volume were jointly-developed:

Jerry F. Bigam surveyed industries other than agriculture; Leo Regehr was responsible for the study of "Municipal Finance"; Clayton A. Sauve was responsible for the "Native Peoples" portion of what could be called the "Human Resources Section" of the report; Paul J. Stelmaschuk surveyed the "Agricultural Industry" and was responsible for recommendations in that section and Ken A. Svenson reported on mobility, "Health", "Welfare" and "Education".

INTRODUCTION

Economic and social development has always been a major goal of Alberta citizens. Beginning with the original settlers, labour, capital and management have been combined with natural resources of the land to provide improved levels of living. As economic development proceeded over the years, social amenities such as churches, schools, and recreation facilities were developed.

However, some areas, such as C.D. 12, developed less rapidly than other areas of the province. As resources were exploited, and improved technology was implemented, economic booms and busts occurred. Human resources were not always utilized at their best levels, and waste occurred in soil and water management as well.

The resulting socio-economic problems emphasized the need for a comprehensive program of development. It became evident by the 1960's that a more active role of the local people as well as all levels of government would be necessary if economic growth and social amenities were to be distributed more evenly throughout Alberta.

These problems were highlighted by a national conference in 1961 on "Resources For Tomorrow." This conference emphasized gaps between potential and actual socio-economic accomplishments across Canada. To close these gaps, the federal Agricultural Rehabilitation and Development Act of 1961 was passed. This act provided for federal-provincial cooperation in programs of research, resource use and socio-economic development in rural areas. Local people could now get government help to inventory their resources and employment opportunities.

This report summarizes the major findings of a comprehensive study of C.D. 12 and is followed by suggestions for stimulating economic and social activity.

An attempt is also made to project the state of the economy for 1976, to identify the adjustments to manpower utilization which should transpire in the meantime. These projections are based on developments which are considered within the ability of the local economy to achieve if assisted by senior governments. However, other developments may take place, which are presently unknown or have not been announced.

The purpose of this report, then, is to provide guidance to local people and all agencies concerned in formulating a program for the area. The goals or targets identified here may be changed or modified if other alternatives are suggested by further study.

THE AREA

Location

Census Division 12 is located in the northeast corner of Alberta, extending 450 miles north and south and approximately 185 miles east and west. Its northern border is coterminus with the southern border of the Northwest Territories; it shares its eastern border with Saskatchewan; its border in the west, roughly follows the fifth meridian and its southern border is formed by the North Saskatchewan River.

Area

While different figures are available for the total area of the census division, all estimates are in excess of 30 million acres of which approximately 6% are occupied. The area is divided into eight civic divisions as follows:

Table ACREAGES IN C.D. 12 [1/]

Subdivisions	Total Area	Assessed Area 1966	Farmland Area 1966
I.D. 85	260,806	9,671	80,657
I.D. 101	1,249,020	174,584	167,281
I.D. 102 (Lac La Biche)	1,832,808	295,308	302,486
I.D. 121	4,308,430	313	-
I.D. 143	22,483,620	74,063	-
M.D. 87	409,868	409,868	420,527
County No. 13 (Smoky Lake)	701,168	409,352	430,166
County No. 19 (St. Paul)	862,872	639,666	660,462
Total Acreage	31,595,956	2,012,825	2,108,046

[1/] Alberta Department of Municipal Affairs; Annual Report, 1966, Queens Printer, Edmonton, 1967. p.p. 221, 253, 277.

Population

The total population of the area in 1966 was 50,635. It has climbed steadily with the exception of the period between 1941 and 1951 when it decreased by approximately two thousand persons. A detailed examination of the population characteristics is available in the publication, Population Characteristics, Alberta Census Division 12 by the Rural Development Research Branch, Economics Division, Alberta Department of Agriculture.

Population by sub-divisions are presented in the following table:

Table POPULATIONS BY CIVIC DISTRICTS [1]
C.D. 12 - 1966

C.D. 12 - 50,635

Civic Districts	
I.D. 85	347
County of St. Paul	6,710
M.D. of Bonnyville	10,979
I.D. 102	1,825
I.D. Lac La Biche	4,925
I.D. 121	309
I.D. 143	1,792
County of Smoky Lake	4,028
Wood Buffalo Park	231
Indian Reserves	3,704

Towns	
Bonnyville	2,237
Cold Lake	1,289
Grand Centre	1,731
Lac La Biche	1,490
Ft. McMurray	2,614
St. Paul	3,543

Villages	
Bonnyville Beach	1
Elk Point	1,289
Glendon	350
Smoky Lake	871
Vilna	344
Warspite	119
Waskatenau	274

Climate

Detailed information on climate is presented in "The Climates of Canada for Agriculture" in the Canada Land Inventory Report.

---

[1] Canada Department of Trade and Commerce, Population, Census of Canada, Vol. 1. 1-6, Dominion Bureau of Statistics, 1967. Table 9

In summary, the southern part has a range of mean frost-free periods of 60 to 80 days, 1750 to 2000 degree-days above 42° F. and an annual water deficiency of 4 to 6 inches. The majority of patented land is suitable for the production of wheat, oats, barley and forage crops.

Natural Resources

Detailed information on soil capability is not yet available on much of the area. However, there is estimated to be in the neighborhood of 1.7 million acres of arable land of which 2/3 is presently improved.

While the majority of the land in C.D. 12 is in the Green Zone, referred to as a forestry zone, only a fraction of the area has, at present, sufficient forest growth to warrant commercial production of wood products. Commercial timber stands are generally located along the major rivers and in Wood Buffalo National Park. The remaining timber stands are scattered throughout the C.D. and some are too isolated to make exploitation economically feasible at present. Many excellent sites are understocked but could provide large volumes in the future if artificially reforested.

Numerous mineral deposits are located within C.D. 12. The world's largest deposit of oil in tar sands is contained within the borders of C.D. 12 and are presently being developed. Further development of the tar sands is probable in the near future.

Oil and natural gas deposits are found in various locations and further development is contemplated shortly. Sub-terranean salt deposits are abundant in the southern part of the area and are being mined at one location. Additional development of this deposit will depend upon more favourable transportation arrangements.

A rich gypsum deposit is located within Wood Buffalo National Park, but is presently not available for development.

Numerous species of fish and wild fur bearing animals are present, especially in the northern regions.

While additional information is required to accurately assess their potential, it is anticipated that both these areas could withstand larger harvests.

Major Industries

Agriculture is still the major industry, supporting some four thousand farmers, approximately half of whom receive $2,500 or more annually from the sale of agricultural products. 1/

Recently, a plant for the extraction of oil from the tar sands has been established at Fort McMurray. There is also a sizeable salt plant at Lindberg near the North Saskatchewan River.

Minor wealth producing activities are carried on in lumbering, manufacturing, fishing and trapping. In addition, extensive services are offered in recreation and tourism, a sector which offers much potential.

Transportation

The area is serviced by rail (two railroads), by air, and by a paved highway. In addition, there is considerable water transportation along lakes and rivers in the north. A rural road study was recently completed which anticipated the needs of the area for the near future.

Power

The availability of power, light, and fuel does not appear to be a limiting factor to the development of the region. The area is well serviced by a major power company directly or indirectly through Rural Electric Associations.

1/ Twenty-five hundred dollars is the minimum revenue from farm products sales that qualify a farm to be classed as "commercial": (D. B. S. classification).

Public Services

Provincial government services are available in all parts of the area, and in some cases, in a much higher concentration than in other regions. For instance, there is a staff of eleven in the Department of Public Welfare in Lac La Biche.

Indians & Metis

There are 12 Indian reserves and 4 Metis colonies within the Rural Development area. All are characterized by the lack of capital, low living standards, and high transfer payments.

Three or four of the Indian reserves are located on good arable land, while the remainder, along with the Metis colonies, are predominately on land with ARDA 5 soil capabilities. 1/

In summary, the area has a growing population, has had high net out-migration and low incomes but offers considerable potential for development because of the vast supply of natural resources and reasonably good entrepreneurship.

A more detailed discussion of these topics follows in the body of this report.

Census Division 12 in Relation to Alberta and Canada

In order to obtain an understanding of the relative position of C.D. 12 in relation to Alberta and Canada, a number of quick indices may be used. Many of these indices are explained in more detail in other reports published by the Rural Development Research Branch, Economics Division, Alberta Department of Agriculture.

1/ Soils in Class 5 have severe limitations on their capability to produce crops. Canada Department of Forestry; The Canada Land Inventory, Report No. 2, Canada Land Inventory, ARDA, Department of Forestry, Ottawa 1965. p. 7

These indices are only a guide to the relative welfare of residents in the area or to the volume of economic activities within the region. In other cases, the indices are merely an explanation of the relative position of C.D. 12 to the rest of the country in terms of the size of population or density per square mile. Nevertheless, they may be useful in obtaining a more accurate impression of the socio-economic setting in C.D. 12 than might otherwise be possible.

Incomes

Perhaps the most important single measurement to consider in assessing the differences between regions is the measure of income. In this connection, the most recent data available on measurement of incomes for the area concerned, is the 1961 census data. While this information is outdated, it is nevertheless an indication of the disparity between C.D. 12 and Canada or the rest of Alberta. The average incomes have, no doubt, changed substantially since 1961 but the relative positions have probably remained fairly constant.

It is apparent from the information available that the average income of the residents of the area are substantially below that of Alberta and Canada. This observation applies both to the farm and non-farm sectors as indicated in the following table:

Table 3

AVERAGE INCOMES IN C. D. 12 [1]

Area	Average Income of Families (Non-Farm)	Average Income of Persons Not in Families (Non-Farm)	Average Income of Farmers From the Sale of Farm Products (Farm)*	
Canada	\$5,449	\$2,137	\$4,880[2]	\$7,252[3]
Alberta	\$5,602	\$2,286	\$5,997	\$9,125
C.D. 12	\$3,752	\$1,442	\$2,707	\$3,874

*Exclusive of supplementary payments.

Additional comments about the relative incomes of commercial farmers, or those engaged principally in the business of farming is presented in the "Agriculture" section of this study.

Employment

The differences in occupations and types of business enterprises in the various areas may be indicated by an examination of the number of persons employed in each sector of the economy. The largest single type of employment in C. D. 12 is in agriculture, where 46.5% of the labour force was engaged in 1961, compared to 21.2% for Alberta and 9.9% for Canada. Personnel at the Canadian Forces Base, Cold Lake, and those engaged in public administration form the second largest employment group. The fishing and trapping sector, especially in the northern areas, employs a larger percentage of labour force than other regions. Other categories are either substantially smaller or equal to other regions.

1/ Bigam, J. F.; *Industry and Resources, Alberta Census Division 12*, Rural Development Research Branch, Economics Division, Alberta Department of Agriculture, Queen's Printer, Edmonton, 1967. pp 32-35.

2/ 1961 Figures.

3/ Canada Department of Trade & Commerce, Advance Bulletin; *Agriculture*, Census of Canada, Vol. A-206, Dominion Bureau of Statistics, 1967, Table 1.

The percentage of the labour force in mining should have increased in recent years due to the tar sands development at Fort McMurray. (See Table .)

Migration

The increase or decrease in population is also an indicator of the viability of the area. An area that is growing rapidly in most instances would have opportunities for employment and consequently, in-migration. On the other hand, an area with a net out-migration would probably have a lack of opportunities for earning a satisfactory living.

Table EMPLOYMENT IN VARIOUS SECTORS OF THE ECONOMY [1/]
1961

	Canada	%	Alberta	%	C.D. 12	%
Agriculture	640,786	9.9	103,573	21.2	7,274	46.3
Forestry	108,580	1.7	2,784	0.6	161	1.0
Fishing & Trapping	36,263	0.6	839	0.2	259	1.7
Mines, Quarries & Oil Wells	121,702	1.9	17,350	3.5	106	0.7
Manufacturing	1,404,865	21.7	42,217	8.6	304	1.9
Construction	431,093	6.6	37,360	7.6	494	3.1
Transportation, Communication and other Utilities	603,286	9.3	47,435	9.7	1,020	6.5
Trade	991,490	15.3	80,096	16.4	1,102	7.0
Finance, Insurance & Real Estate	228,905	3.5	14,695	3.0	122	0.8
Community Business & Personnel Services	1,263,362	19.5	93,424	19.1	2,015	12.8
Public Administration & Defence	482,925	7.4	38,627	7.9	2,425	15.4
Not Stated	168,593	2.6	11,111	2.2	446	2.8
Total	6,481,850	100.0	489,511	100.0	15,728	100.0

[1/] Canada Department of Trade and Commerce, Labour Force by Industries-1961, Vol. 3.2.5, Census of Canada, Dominion Bureau of Statistics

Between 1956 and 1961, a period without substantial changes in the economy, there was a net out-migration from C.D. 12 of 9.0% compared to a net in-migration for Canada of 3.0% and for Alberta of 5.8%. This would be an indication of the trend in the southern part of C. D. 12. Since the figures were compiled, considerable in-migration has occurred in Fort McMurray. Ideally a development program would include the provision for the out-migrants of the southern portion to receive the opportunities, and if need be, the training to occupy the jobs created in Fort McMurray or elsewhere within the area.

Table 5 PERCENTAGE OF NET MIGRATION OF POPULATION [1]

	1956-1961		1961-1966	
	Number	%	Number	%
Canada	+482,469	+3.00	+317,671	+1.74
Alberta	+ 64,594	+5.75	- 7,172	-0.54
C. D. 12	- 4,038	-8.98	- 2,984	-6.31

Growth of Population

Although there was a net out-migration between 1956 and 1961, actually there was a growth in population which occurred almost entirely in either the urban or rural non-farm categories. Prior to this period, C. D. 12 grew more rapidly in terms of population than either Alberta or Canada.

---

[1] Special tabulations: Canada Department of Trade and Commerce; Population Sample, General Characteristics of Migrant and Non-Migrant Population, Census of Canada, Vol. 4.1-9, Dominion Bureau of Statistics, 1961.

Table 6 PERCENTAGE CHANGE OF POPULATION FROM PRECEDING CENSUS [1]

	1911	1921	1931	1941	1951	1961	1966
Canada	34.2	21.9	18.1	10.9	21.8	30.6	9.7
Alberta	412.6	57.2	24.3	8.8	18.0	41.8	9.9
C. D. 12	226.6	112.1	45.0	27.8	-9.3	18.6	6.9

Natural Increase

The population in C. D. 12 is increasing more rapidly than either Alberta or Canada as a result of natural increase or the difference between the number of births and deaths. The high percentage figure in C. D. 12 is partially accounted for by the high birth rate of the native people, as explained in the section devoted to both Indians and Metis.

Table 7 PERCENTAGE OF NATURAL INCREASE IN POPULATION
1956 - 1961

	Number	%
Canada	1,674,987	10.4
Alberta	144,234	12.8
C. D. 12	6,411	14.3

Density of Population

Because of the vast areas of uninhabited lands, in Canada, a meaningful measure of the density of population is difficult to obtain. For example, the density of people per square mile in the M. D. of Bonnyville is 16.1, the M. D. of St. Paul - 8.1, and the County of Smoky Lake - 5.8, compared to 0.9 for the whole census division. Other comparisons are presented on the following page.

---

[1] Svenson Ken, A.; Population Characteristics Alberta Census Division 12, Rural Development Research Branch, Economics Division, Alberta Department of Agriculture, Queen's Printer, Edmonton, 1966.

[2] Canada Department of Trade and Commerce; Canada Yearbook 1965, Dominion Bureau of Statistics, Ottawa 1967. p. 164. Special tabulations.

Table 8 DENSITY OF POPULATION [1/]

	Population Per Square Mile
Canada	5.12
Canada (Exclusive of Yukon & N.W.T.)	8.66
Alberta	5.35
C. D. 12	0.90
M. D. of Bonnyville	16.10
M. D. of St. Paul	8.10
County of Smoky Lake	5.80

Productive Ages

Another measure of the viability of an area is the percentage of the population in the productive ages, generally considered to be 15 to 64 inclusive. Census Division 12 has a smaller percentage in this category than either Alberta or Canada. On the other hand, the percentages of children, ages 0 to 14 inclusive, is 5% higher than Alberta and 6% higher than Canada. Average per capita incomes would be somewhat lower in C. D. 12 than the actual wages or salary rates because of the necessity of distributing the income among a larger number of dependents.

The percentage of older persons in C. D. 12 is slightly less than the other areas, although the difference is much less significant than the 0-14 age group.

[1/] Canada Department of Trade and Commerce; Canada Yearbook 1965, Dominion Bureau of Statistics, Ottawa 1967. pp. 27, 30. Special tabulations.

Table 9 PERCENTAGE OF POPULATION BY AGE GROUPS [1]

	Population		% of Total Population	
	1961	1966	1961	1966
	(Ages 15 - 64 Inclusive)			
Canada	10,655,171	11,883,575	58.4	59.4
Alberta	769,542	858,421	57.8	58.0
C. D. 12	25,307	26,781	53.4	52.9
	(Ages 0 - 14 Inclusive)			
Canada	6,191,922	6,591,757	33.9	32.9
Alberta	469,324	510,766	35.2	34.9
C. D. 12	19,105	20,664	40.3	40.8
	(Ages 65 and Over)			
Canada	1,391,154	1,539,548	7.6	7.7
Alberta	93,078	104,010	7.0	7.1
C. D. 12	2,968	3,190	6.3	6.3
Total				
Canada	18,238,247	20,014,880		
Alberta	1,331,944	1,463,203		
C. D. 12	47,380	50,635		

Total Capital Value of Farms

A measure of the savings by farm operators is available from an examination of the total capital values per farm for recent years. Although this figure may include the increase in the price of land, liabilities and other items, the increase in the total capital value per farm is used here as a rough measure of the savings made by farm operators. (See Table 10.)

---

[1] Canada Department of Trade and Commerce; General Review, Age and Sex Composition, Census of Canada, Vol. 7. 1-4, Dominion Bureau of Statistics, 1961. (and special tabulations)

In the period between 1951 and 1961, the total capital value of farms in Alberta increased some sixteen thousand dollars compared to a six thousand dollar increase for C. D. 12, and twelve thousand for Canada. This difference is probably a reflection of greater quantities of resources to work with in the province generally, although the price of land near the larger population centres would show a higher proportional rise than in the outlying areas. In any event, the evidence indicates that the growth of farm enterprises in C. D. 12 are lagging on the average in relation to the province.

Table 10 AVERAGE TOTAL CAPITAL VALUE OF FARMS 1/

	1951	1961	1966	1966
Canada	$15,200	$27,390	$44,307	$58,221
Alberta	$21,255	$37,118	$60,734	$76,261
C. D. 12	$12,495	$18,451	$29,390	$40,999

Commercial Farms

Another estimate of the relative position of C. D. 12 in relation to the rest of Canada is income per commercial farmer.

1/ Canada Department of Trade and Commerce; *Agriculture Alberta* Census of Canada, Vol. 5. 3-3, Dominion Bureau of Statistics, 1961. Table 18 and Vol. A-206, 1967. Table 1.

Table 11 AVERAGE INCOME FROM SALE OF AGRICULTURAL [1/] PRODUCTS OF COMMERCIAL FARMERS

	Canada	Alberta	C. D. 12
1961	$ 4,172	$ 7,328	$ 3,755
1966	$11,462	$12,447	$ 6,392

* Commercial Farmers (1961): Those who obtained $1,200 or more from the sale of agricultural products. (D. B. S. classification.)

(1966) Those who obtained $2,500 or more from the sale of agricultural products. (D. B. S. classification.)

Other Indicators of Growth

A number of other indicators of either the welfare of individuals or the volume of economic activities are presented in other parts of the report. Also included is an indication of the potentials for development which, hopefully, will reduce the disparity between the region and the rest of the nation. It should be remembered that there are large variations within C. D. 12 in respect to many of the indices mentioned above. Further details of these differences are either indicated in this report or other published data.

[1/] Canada Department of Trade and Commerce; Agriculture Alberta, Census of Canada, Vol. 5. 3-3, Dominion Bureau of Statistics, 1961. Table 20 and Vol. A-206, 1967. Table 1.

TRADING AREAS

Generally, people work, play and live within a relatively restricted geographical area. This occurs because time and money impose restrictions upon the distances which a person may travel in pursuit of any activity. Time used in transit reduces the time which can be used participating in desired activities at any destination. Money spent on transportation cannot be used for other desired activities or things. For persons with low incomes money is the major constraint on mobility while for people with higher incomes this constraint comes in the form of time. New highways or other innovations in transportation can change the behavior patterns of people.

C. D. 12 has experienced a decline in the agricultural labour force in the past and this trend is likely to continue. With the decline in farm population will come decline in trading area population and thus a decline in the trade centre itself. As farmers become more affluent (due mainly to increasing farm size and productivity) the farmer himself becomes more mobile because he has access to better transportation facilities. He may now bypass his old trading centre and drive to a larger centre which has a wider range of goods and services from which he can choose. Large centres will tend to get larger and smaller centres will tend to decline because of this process.

People also tend to drive varying distances depending on the particular goods or services they desire. A farmer will drive much farther for clothing than for gas and oil. Because of this smaller centres will maintain a grocery and confectionery business, but will not have a farm implement dealer. Figures 3 through 7 illustrate the approximate trading areas in C.D. 12 for selected products in 1966. These maps show cores of the trading areas only, consequently, trading areas do not overlap one another.

Figure 1

C.D. 12 TRADING AREAS

MEDICAL SERVICES

(Core Trading Area Only)

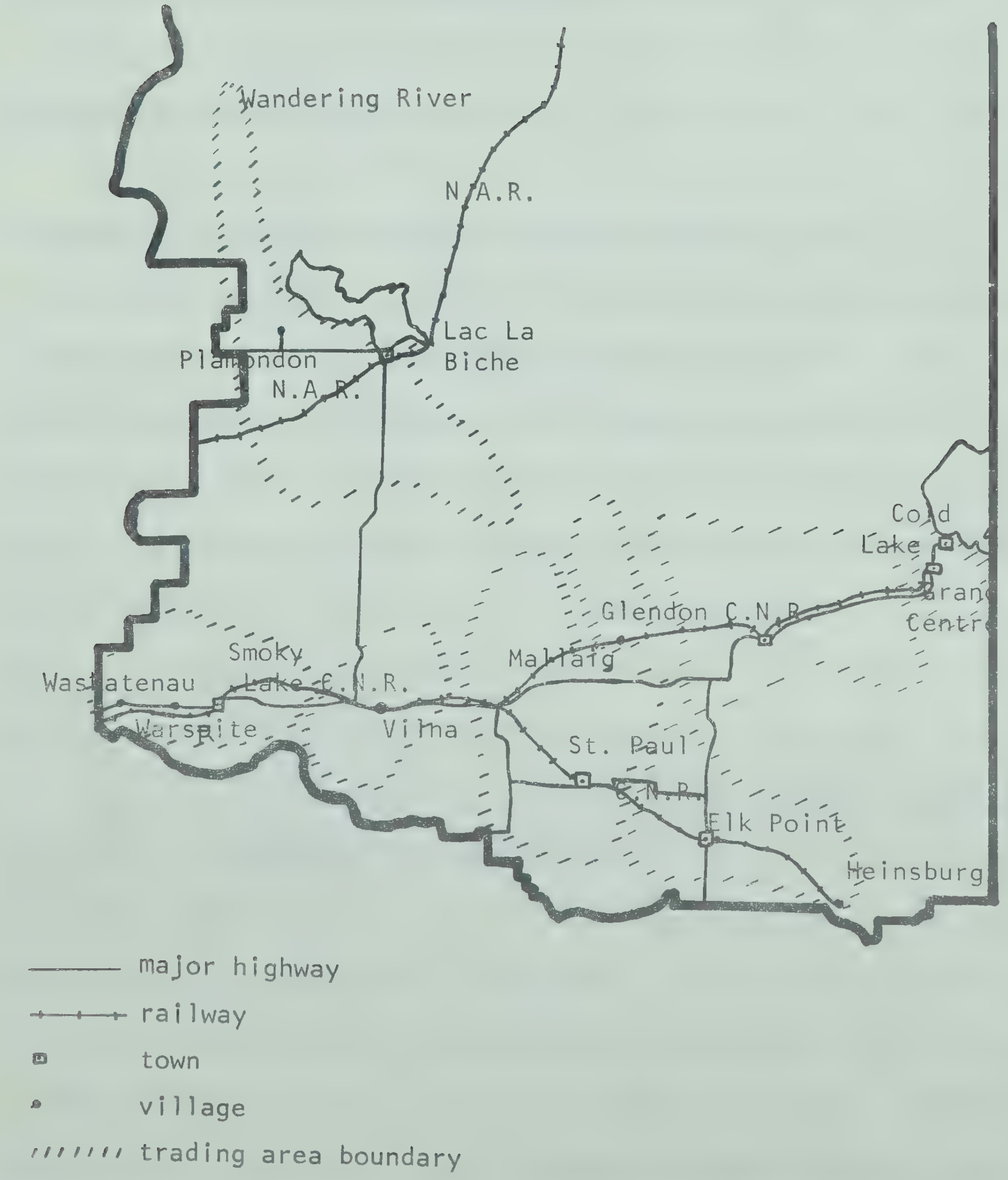


Figure 2

C.D. 12 TRADING AREAS

CLOTHING

(Core Trading Area Only)

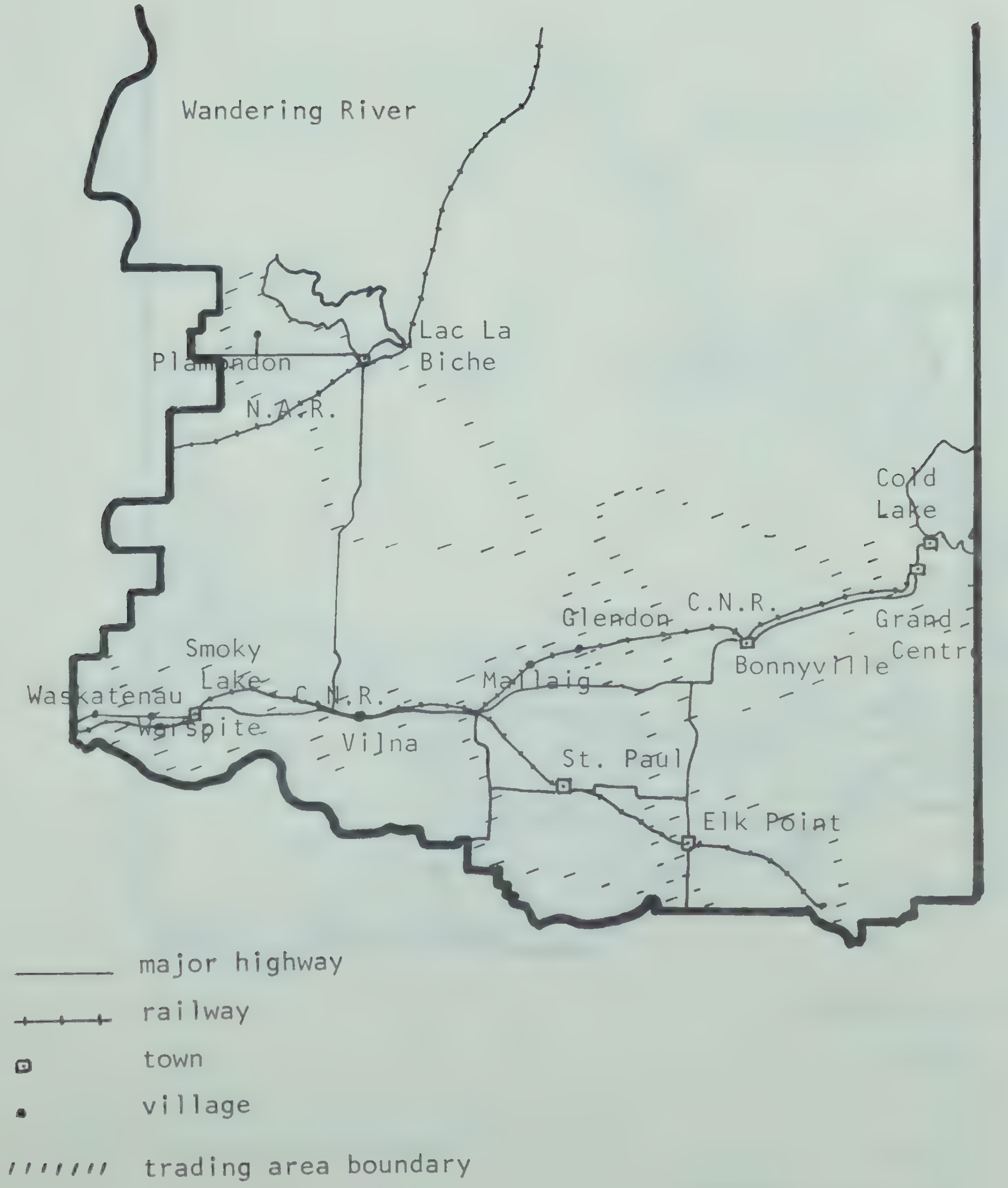


Figure 3

C.D. 12 TRADING AREAS

FARM MACHINERY

(Core Trading Area Only)

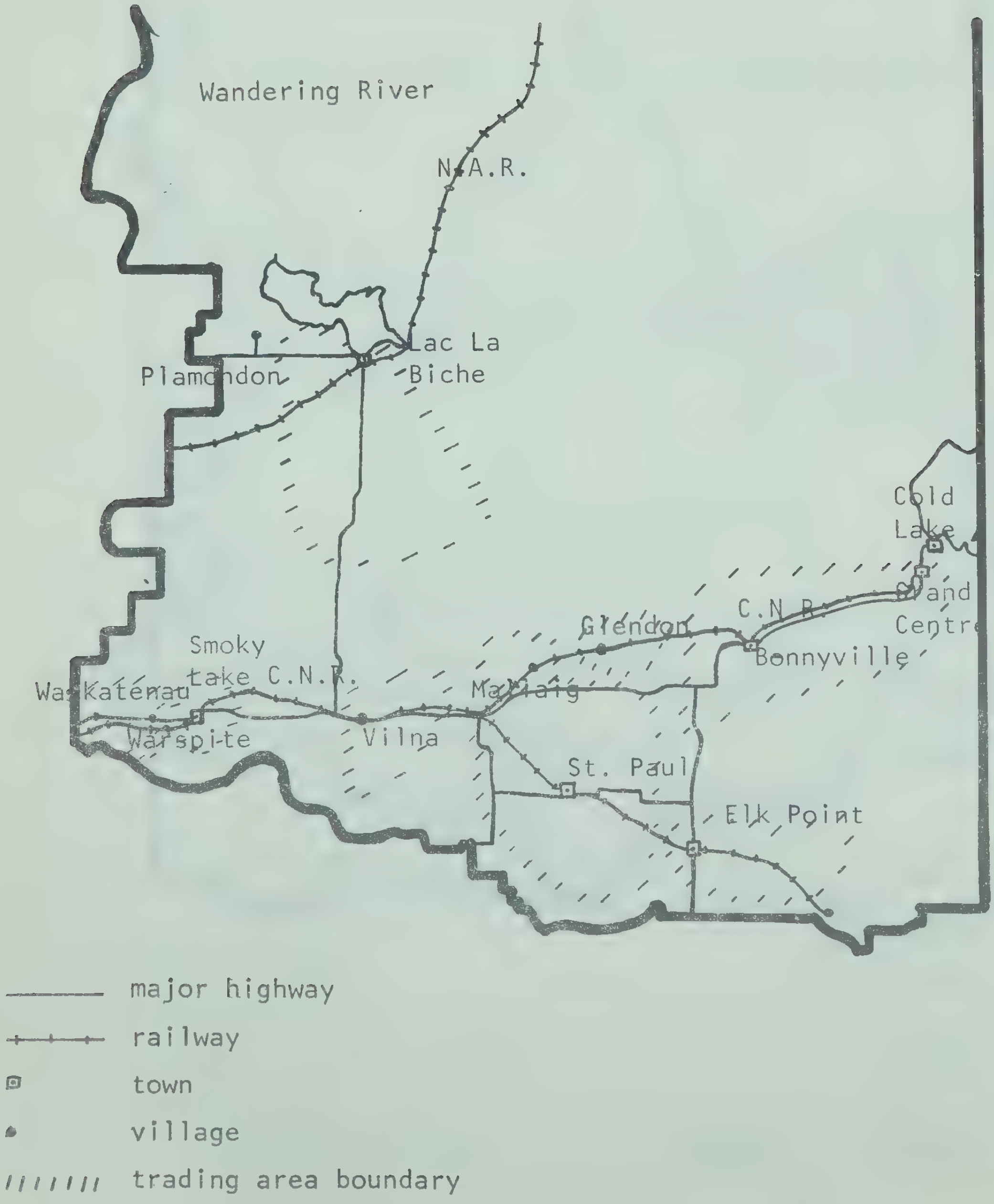


Figure 4

C.D. 12 TRADING AREAS

GAS AND OIL

(Core Trading Area Only)

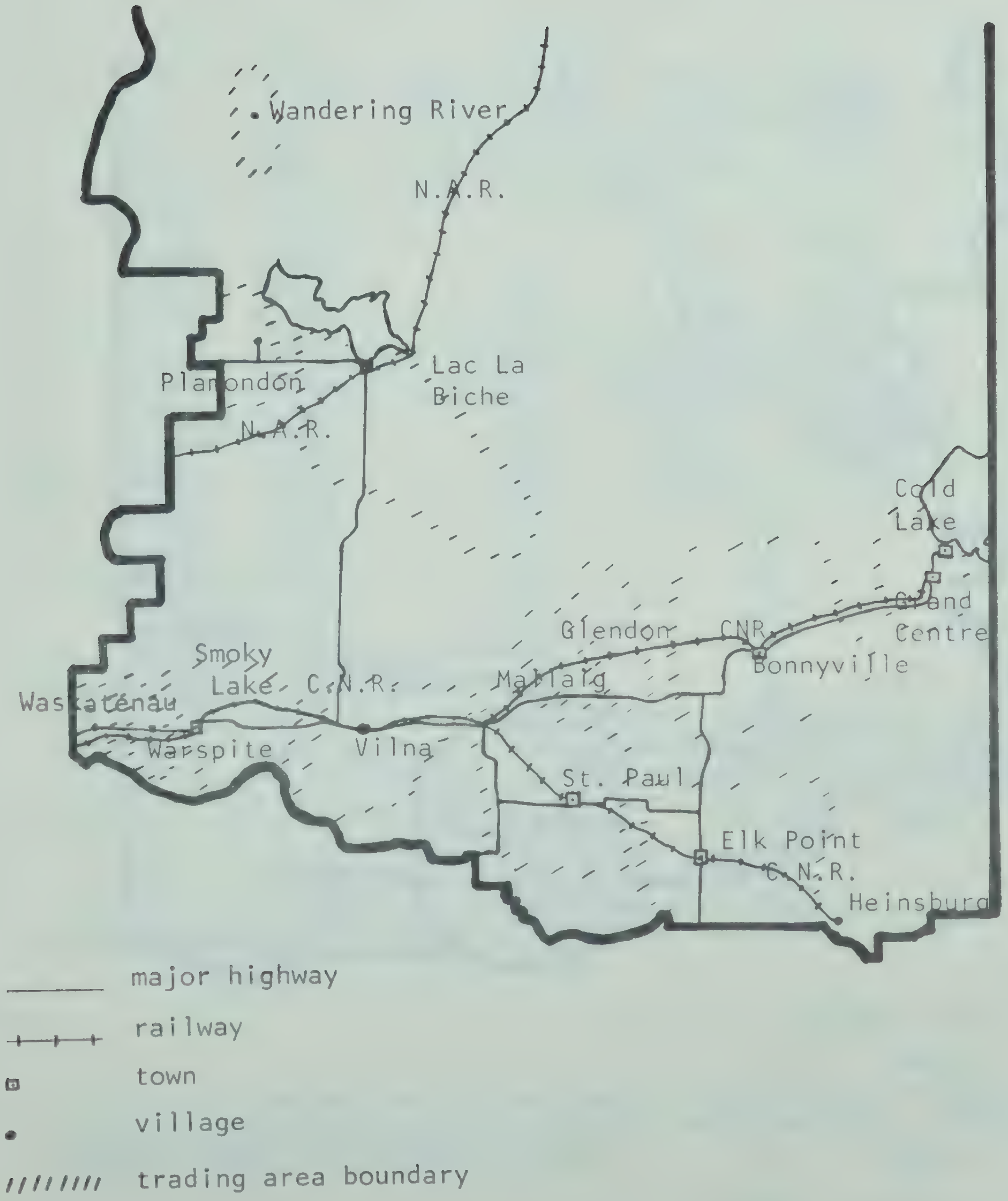
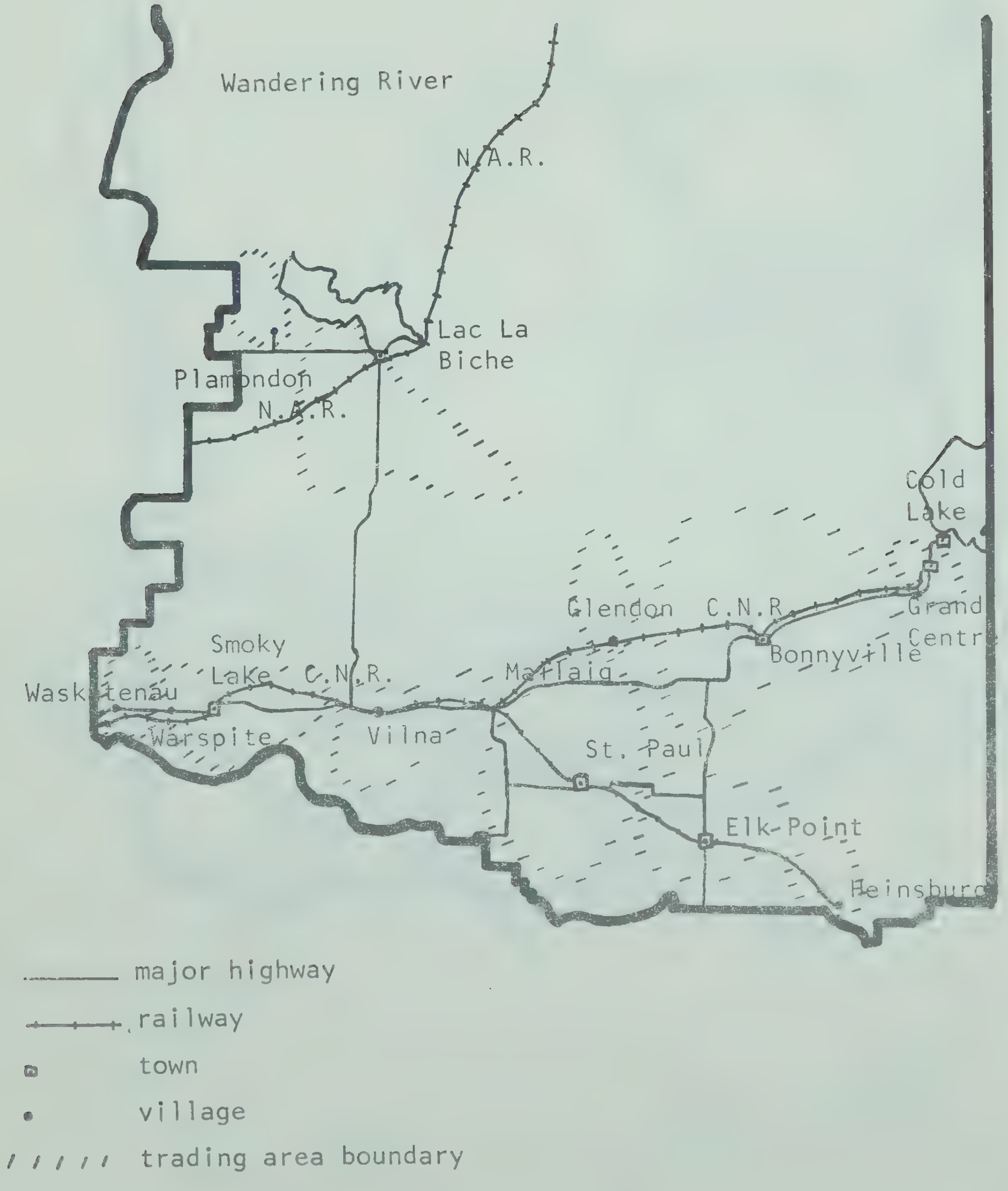


Figure 5

C.D. 12 TRADING AREAS
GROCERIES
(Core Trading Area Only)



Population Projections

The present population (1966 Census) of C.D. 12 is 50,635, which is an increase from 44,947 in 1956. When present trends are projected, they indicate a population of 56,833 by 1976. The details of a population projection by age group are shown in the following table:

Table 12 POPULATION PROJECTION FOR 1976 BY AGE GROUP [1/]
BASED ON 1956-1966 TRENDS
C. D. 12

	1956	1966	Number Change By Cohort	% Change	1976 Number Change	1976 Population
Under 5	6,505	7,124		32.01*	16,208	8,021
5-9	5,836	7,271				8,187
10-14	5,029	6,269	- 236	- 3.62	- 257	6,867
15-19	4,102	4,702	-1,134	-19.34	-1,406	5,865
20-24	3,555	3,033	-1,996	-39.70	-2,488	3,781
25-34	5,766	6,189	-1,468	-19.17	-1,483	6,252
35-44	5,043	5,533	- 233	- 4.04	- 250	5,939
45-54	3,804	4,235	- 888	-16.02	- 888	4,647
55-64	2,567	3,089	- 720	-18.90	- 800	3,435
65+	2,735	3,190	+ 623	+24.27	+ 750	3,839
Total	44,947	50,635				56,833

* Calculation for those under ten years is based on % of previous total and assigned to five-year age groups, according to 1966 distribution.

#	%
7,124	49.49
7,271	50.51
14,395	100.00

[1/] Special tabulations: Department of Trade and Commerce; General Review Age and Sex Composition, Census of Canada, Vol. 7. 1-4, Dominion Bureau of Statistics, 1961.

The above projections are based on population trends in the last ten years. Population trends can be affected by economic changes and the figures shown above will need to be modified when data on projected economic developments becomes available.

It is projected that the demand for labour will grow so that by 1976 the labour force is expected to be 22,235 persons. If the ratio of 3.01 people in the total population to every person in the labour force is maintained then there will be 66,927 people in C.D. 12 in 1976. In order to project the need for schools and other facilities this total population must be divided into age categories. The percentage distribution of the population by age category for C.D. 12, C.D. 14 and Alberta is given in the following table:

Table 13 PERCENTAGE DISTRIBUTION OF POPULATION BY AGE CATEGORY [1/]
C.D. 12, C.D. 14 & ALBERTA 1966

Area	% Under 5	% 5-24	% 25-64	% 65 +
C. D. 12	14.1	42.0	37.6	6.3
C. D. 14	13.6	40.1	40.6	5.7
Alberta	11.9	38.8	42.2	7.1

It is expected that the majority of the growth in population will occur in the more urban areas of the census division and as a result the population will take on some of the more urban characteristics such as smaller families.

[1/] Canada Department of Trade and Commerce; Population, Census of Canada, Bulletin A-5, Dominion Bureau of Statistics, Ottawa, 1966. Special tabulations, Rural Development Research Branch.

It is not expected that C.D. 12 will achieve the degree of urbanization that is now average for Alberta but it will approach the 1966 C.D. 14 level. Therefore the age distribution of C.D. 14 in 1966 is used to project the age distribution. This distribution is shown in the following table:

Table 14 PROJECTED POPULATION BY AGE CATEGORY 1976 [1/]
C. D. 12

Age Category	Percentage	Number
Under 5	13.6	9,102
5 - 24	40.1	26,838
25 - 64	40.6	27,172
65 +	5.7	3,815
TOTAL	100.0	66,927

An attempt to project the distribution of this population by rural and urban residence is shown in the following table.

[1/] Tabulations by the Rural Development Research Branch.

Table 15 RURAL-URBAN POPULATION DISTRIBUTION WITHIN THE BOUNDARIES OF SELECTED SUBDIVISIONS OF C.D. 12 1/

Subdivision		Actual Population 1956	%	Actual Population 1966	%	Projected Population 1976 2/	%
C.D. 12		39,016	87	37,731	75	36,965	55
	Rural	5,931	13	12,904	25	29,962	45
	TOTAL	44,947	100	50,635	100	66,927	100
County of Smoky Lake	Rural	6,902	100	5,636	100	4,314	100
	Urban	-	-	-	-	-	-
	TOTAL	6,902	100	5,636	100	4,314	100
County of St. Paul	Rural	8,573	79	7,436	68	5,757	53
	Urban	2,229	21	3,543	32	5,013	47
	TOTAL	10,802	100	10,979	100	10,770	100
I.D. # 102	Rural	6,033	100	4,926	77	4,352	67
	Urban	-	-	1,490	23	2,143	33
	TOTAL	6,033	100	6,416	100	6,495	100
M.D. of Bonnyville	Rural	10,369	80	11,329	68	11,074	54
	Urban	2,592	20	5,257	32	9,547	46
	TOTAL	12,961	100	16,586	100	20,621	100
I.D. # 143	Rural	879	44	1,792	41	5,230	28
	Urban	1,110	56	2,614	59	13,259	72
	TOTAL	1,989	100	4,406	100	18,489	100
Remainder	Rural	6,260	100	6,612	100	6,238	100
	Urban	-	-	-	-	-	-
	TOTAL	6,260	100	6,612	100	6,238	100

1/ Janssen, et al; Population Characteristics, Census Division 12, Rural Development Branch, Economics Division, Alberta Department of Agriculture, Edmonton, 1966. p. 21 and Canada Department of Trade and Commerce; Population, Census of Canada, Vol. 1. 1-6, Dominion Bureau of Statistics, 1967. Table 9. Note: Figures quoted include total population in towns and villages within the geographic boundaries of the subdivisions.

2/ 1976 population was projected on the basis of rural and urban population trends from 1956-66 and then adjusted to fit population projections made on the basis of the labour force projections.

Urban residence is defined as residence in any centre of 1,000 population or larger. The projections were made on the basis of trends from 1956 to 1966 and then adjusted to fit the projections made on the basis of the projected demand for labour. The trend in C.D. 12 is similar to that in other areas in that the rural population is declining while the urban population is generally increasing.

The projected demand for labour indicates the force will rise to 22,235 persons (in manpower equivalent) by 1976. In Alberta in 1961, there were 2.7 persons in the total population for every person in the labour force. If this ratio is maintained, in 1976 there will be a total of 60,479 people in C. D. 12. This is 3,646 persons more than the number projected on the basis of 1956-1966 total population trends. In 1961 C.D. 12 had 3.0 persons in the total population for every person in the labour force. If this figure is used as the basis for projection to 1976, then the anticipated population would be 66,927. It is likely, however, that as urbanization and industrialization proceed in C.D. 12, the characteristics of the population will become more like those of Alberta generally and so the projection of 60,479 is probably more likely than the larger figure.

PROSPECTS FOR THE FUTURE

Concepts of Regional Growth & Development

Before a discussion of the basis of regional growth is possible, a definition of the term 'growth' is necessary.

The term 'growth' has been used in a number of different ways and for a multitude of purposes by various writers, usually alluding to individual or family welfare and measured in terms such as per capita income, level of living, net worth of a family, etc. On the other hand, growth is frequently used to denote development. 'Development', instead of referring to the welfare of individuals, is often used to indicate the total volume of economic activities. It would be measured in such terms as total goods and services produced within a particular enterprise or area, the labour force and population. Consequently, 'growth' refers more to the welfare of individuals, whereas 'development' is more concerned with total production, employment and volume of economic activities.

It is apparent that an area may grow but not develop or the opposite may be true. The entry of a competitor into a local market may provide more employment but the per capita income in real terms may be reduced for each of the proprietors. In recent years the number of farms in C.D. 12 has been reduced. There are fewer operators and fewer units, but higher per capita incomes. On the other hand, if the land under cultivation was increased, or if the productivity on present land was raised, it might be possible to have more farms and still have increased incomes per farm. Similarly, other resources might be developed which would produce larger quantities of goods and also provide additional viable employment for the residents of the area.

Basis for Growth

There are a number of theories which attempt to explain regional growth. This report will deal briefly with two of these: (1) the economic base theory and (2) the productivity theory.

The economic base theory has two main ideas, a market hypothesis and an opportunity hypothesis.

The market hypothesis is based on the premise that an area's growth rate is dependent on the volume of goods and services exported out of the area in relation to the imports. In this case, goods and services exported out of the area would refer to Census Division 12. It is suggested that only those goods and services which are exported really bring wealth into the area and are, therefore, called the wealth-producing sectors of the economy. The remainder of the economy is based on supporting the export sector, e.g., feed mills, implement agencies, etc., and the domestic sector which provides goods and services for the consumption of local residents, e.g. grocery store, theatre, medical services. The resource producing industries may be ranked by the number of employees in each sector. The industry with the greatest number of persons engaged in the export category is called the prime mover of the economy, although not necessarily the greatest growth promoter. The market hypothesis assumes growth to be dependent on: increase of exports from the area by discovering new resources and by product promotion; increase of the area of improved land and concentration on those products for which the area has a comparative advantage.

The 'opportunity' hypothesis of the economic base theory assumes that lagging growth is due to potential firms or present firms in the area being unaware of profit opportunities which may exist but which are not being exploited at the present time. The policy to follow to promote growth, then, would be to attract new firms to the area.

Frequently, this is attempted by enumerating the advantages potential firms would enjoy if they came to the town. Items mentioned include industrial sites, availability of raw materials, low labour costs, transportation facilities, ready access to parks, churches and playgrounds. In other cases, the friendly attitudes towards business might be enumerated and perhaps even tax concessions given.

The productivity theory is somewhat different from the economic base concept. It regards productivity as the fundamental determining factor of the economic growth. It also holds that the level of exports is dependent on the course of development. In essence, instead of discovering new resources and bringing capital to develop them and thus help the rest of the economy, it is argued that bringing capital, labour and technology into the existing resources as well as new resources would promote growth. It is assumed that the economy may grow by improving the quality of the labour, applying modern technology, using more up-to-date machinery, building better schools, constructing better roads and building a better transportation system. In short, it emplies that development may be stimulated by diverting more resources into internal improvement, both real and human, from either local sources, from borrowing outside money or from increased participation of government in resource development programs. According to this theory, the way to improve growth in the area is to concentrate on the improvement of the existing economic and social systems.

Export and Domestic Sectors of the Economy

Neither of these two theories are used in this report to the exclusion of the other. In actual implementation, however, there will probably be more attempts to raise the productivity of workers than to increase the number of employees in the export category.

Perhaps the best use of the export-domestic theory is to more or less show why the area exists. There is another use for the export-domestic theory: When data be sector is combined with information regarding the developments which may occur in the near future, it permits some degree of forecasting. Here is a brief explanation of this theory:

The export sector is that portion of the labour force which produces goods or services for market outside the area. For instance, most of the farm produce will be marketed in other parts of Alberta or Canada or possibly in other nations, although some of the dairy products are sold locally. In effect, most of these goods are 'exported' from the area in return for dollars. Similarly, the oil extracted from the tar sands will be exported. Recreational activities provided for residents from outside C.D. 12 are considered as exports because these services or goods are exchanged for tourist dollars. The air base at Cold Lake is also an export activity, bringing dollars into the area in the form of local expenditures of the service personnel as well as the wages and salaries of local people employed at the base.

The domestic sector is that portion of the labour force which serves the markets within the area. The local retail trade, the grocery man, the barber, the doctor and the school teacher supply the local market. They do not bring wealth into the area directly but make it possible for those in the export sector to produce it. (i.e. wealth)

The export sector is the prime mover of the economy and the wealth producer. As employment in the export sector rises or falls, so does the employment in the domestic sector. However, employment increases in the domestic sector are not completely dependent on the export sector.

The export sector consists of all or most of the activities in each of the following:

- Farming
- Mining
- Fishing and Trapping
- Forestry
- Recreation and Tourism
- Defence

The domestic sector consists of most or all of the activities in the following:

- Retail and Wholesale
- Community, Business and Personal Services
- Finance, Insurance and Real Estate
- Local Government

Ratio of Export to Domestic Employment

The ratio of export to domestic employment will vary according to the maturity of the area and the size and type of the economic activity. In Alberta the ratio is approximately 1:1, while in the outlying areas the ratio may be 2:1 or 3:1. The ratio in C.D. 12 in 1961 was estimated to be 1.9:1. However, because of an increasing number of services demanded in modern living, it is suggested that the ratio in C.D. 12 in 1976 will be 1.4:1.

Objectives of the Rural Development Program

The foregoing discussion raised the question regarding the objectives of the Rural Development Program. Should emphasis be placed on the welfare of individuals by increasing per capita incomes and levels of living, or on encouraging more volume of production and employment. Both of these objectives are most desirable and should be the aim of the program. However, in some sectors of the economy, particularly in agriculture, the two objectives may be working in opposite directions, if the land base and level of technology remain constant.

Conversely, these objectives may be complimentary if more land could be improved and if the land could be made more productive.

The objective of the Rural Development Program in this study, shall be taken to mean an increase in both the welfare of individuals and the volume of economic activities. However, if these objectives are deemed to be incompatible in certain instances, the improvement of the welfare of individuals shall be given priority.

The Approach to Rural Development

In order to achieve increased per capita incomes and greater employment opportunities, there should be investment in:

1) human resources
2) physical resources
3) capital facilities

The amount and type of recommended investment is described in some detail in following sections. However, it should be noted that each investment is intended to relate to the changes in the economy that are anticipated in the next ten years. These changes are constantly taking place and any development plan can only provide guidelines during the transition period. At no time can the process of change be halted, consequently, there will always be need for development programs of one kind or another.

This study recognizes that C.D. 12 is competing with other areas, just as two business firms compete within an area. For example, C.D. 12 enjoys some advantages, relative to most other areas, in terms of the presence of mineral deposits and outdoor recreational resources. C.D. 12 is at a disadvantage to some other areas, in terms of the proximity of major markets, transportation costs and productivity of some of its soils.

Other examples could also be used to indicate that the opportunities of succeeding in a specific type of enterprise may be greater in one area than in another which is further from markets, has poorer resources or has some other less desirable characteristics. As a consequence, the recommendations contained herein attempt to avoid most expenditures which subsidize industries not enjoying some degree of comparative advantage.

Major emphasis is placed on the improvement of the human resource through training and rehabilitation programs. While it would be desirable for all employable residents to be able to obtain gainful employment in the area, findings of this study suggest that the labour force in some industries will, and indeed should, decline. This in turn implies that certain patterns of inter and intraregional migration may develop. Attention is directed to programs which will equip residents to participate in this migration, if they so desire.

Finally, consideration is given to the development of natural resources within the area. Proposals are included which would permit the clearing, breaking and preparing of arable land for the production of field crops. Suggestions are made for improving less productive lands for the production of hay and for pasture. Discussion is also included pertaining to the development of other resources by improving roads, etc. It is assumed that the development of highly capital intensive, oligopolistic enterprises such as oil, or pulp and paper will not be influenced to any great extent by this program.

Each sector of the economy is examined with respect to its growth potential and the assistance which might stimulate further development. In addition, the anticipated labour force demand in 1976 is compared with the anticipated supply in order to determine the adjustment which will be required to bring them into equilibrium.

These are estimated, firstly by projecting the changes in the labour force in each of the primary and secondary industries of the economy; and secondly by the labour force in most of the tertiary industries from an assumed ratio between the 'export' and 'domestic' sectors, as explained on the following pages. Consequently, the labour balance concept is the basis for most of the adjustments in manpower utilization.

It is realized that it is impossible to anticipate correctly all of the economic activities which will evolve during the next ten years, and therefore, the projected employment figure will be subject to change. Furthermore, the introduction of technology will probably modify the methods of production in the intervening years, which will also affect the validity of the projected labour requirements.

SUPPLY AND DEMAND IN THE LABOUR FORCE

Outline for Rural Development

While there is substantial disparity between C.D. 12 and the rest of the province, there appears to be no valid reason why the area could not attain equal levels of living. It has, within its borders, substantial resources in terms of minerals, forests, fish, wild fur bearing animals and recreational potential. It also has large areas of arable land; this, along with a structural change in agriculture, would permit the establishment of viable farming enterprises. In addition, the people are generally resourceful and willing to help themselves if the opportunity is provided for them to do so.

This report, along with previously published information has attempted to enumerate the resources available, to analyze the resources and to indicate the potentials for further development. It is suggested that the goals which are alluded to are possible to attain if local people are given assistance by governments at all levels. Whether the goals are actually reached is more in the realm of the fututre policy and procedures and are not an issue in this report.

The 1966 gross regional output of approximately $21,586,600, was made up as follows:

Agriculture	-	$16,290,000
Forestry	-	1,070,000 1/
Fishing	-	325,000 2/
Trapping	-	444,600
Mining	-	1,125,000
Manufacturing	-	2,332,000 3/

1/ Includes sawmilling value added.

2/ 1965-1966 fiscal year.

3/ Includes $282,000 for planing mills.

It is anticipated that the total production for the area could be increased to a projected figure of $177,227,000 by 1976 or shortly thereafter. While the production of oil will constitute the greatest single constituent, it is suggested that the most significant increase in terms of improvement of the existing economy will occur in agriculture. Here the productivity per farm could double by improved use of technology and the horizontal and vertical enlargement of farm units. Realistic objectives in terms of output in each sector are as follows:

Agriculture	-	$34,327,000
Forestry	-	3,500,000
Fishing	-	400,000
Trapping	-	1,000,000
Mining	-	135,000,000
Manufacturing	-	3,000,000

Associated with the adjustment in output per sector are upgrading and mobility of the labour force. The number of farm workers is expected to decline, whereas the number of persons engaged in the mining activities in connection with the tar sands is expected to increase. Similarly, there is expected to be other adjustments in the labour force as indicated on page 42. Detailed explanation of the foregoing figure is given in appropriate sections in the body of this report and in the remainder of this chapter. Essentially, the labour force in terms of man year equivalents could reach 22,235 persons by 1976, an increase of 41% over the 1961 labour force of 15,728 persons. Considering 2.72 people for each person in the labour force, the provincial average in 1961, the projected population for 1976 is 60,479, an increase of approximately 10 thousand over 1966. However, if the ratio of population to the labour force for C.D. 12 is used, (3.01) the projected population for 1976 would be 66,927 persons.

In relating the projected demand of the labour force in C.D. 12 to the projected supply, it is necessary to estimate the number of new entries into the labour force, the retirements, and the amount of migration. These estimates are shown below.

Table 16 C. D. 12 LABOUR FORCE SUPPLY

1.	1961 Labour Force	15,728
2.	New Entries 1961-1976 [1/]	8,524
3.	Retirements [2/]	2,180
4.	Increase 1961-1975 (8524-2180)	6,344
5.	Labour Supply with No Migration 1976	22,072
6.	1961-76 Out Migration Based on 1956-66 Trends	3,541 [3/]
7.	Total Labour Force Supply 1976	18,531

It is noted that the estimated supply of the labour force without migration in 1976 is 22,073 persons, or 162 less than the projected demand. This means that the relocation of persons within the area could virtually take care of the additional manpower needed in the near future. It is recognized that the dependency of the labour demands on its own supply would necessitate an accelleration of training programs because many of the new jobs created will be of a technical or professional nature. Furthermore, a number of the positions to be created will require skills which cannot be obtained through a training program only and consequently certain key professional and technical employees will have to be imported.

[1/] Computed by taking those under age 15 in 1961 and computing participation for 1976 using 1961 Alberta age specific participation rates.

[2/] Computed by taking those over 65 in 1961 as retired by 1976 and adding to this figure the reduced participation of those between 50 and 64 in 1961 by 1976.

[3/] Computed by subtracting population 15-64 years in 1966 from population 5-54 in 1956 and applying general C.D. 12 participation rates for 1961.

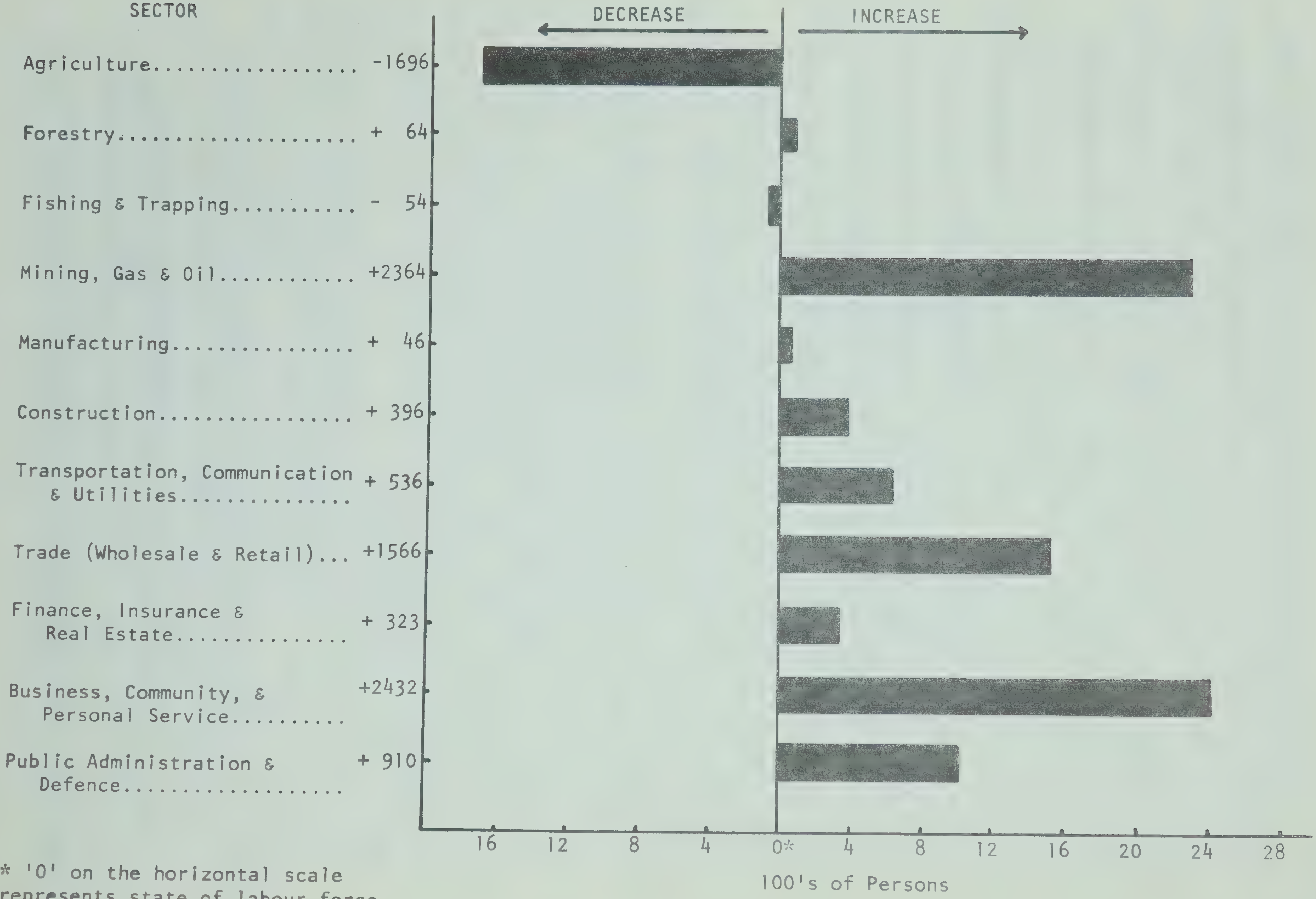
On the other hand, if the out migration based on 1956 to 1966 trends persists, it will be necessary to import approximately four thousand persons. In this situation, some people would leave C.D. 12, while others would move into C.D. 12 to occupy newly created positions. It would therefore appear that the development program of the area should be geared, as much as possible, to utilize the manpower already there.

An estimate of the wealth producing or export sector of the economy is given on page 43, Table 16. While some assumptions have to be made, on the future growth and the percentage of the labour force in each sector which is exchanging goods for dollars, it is suggested that in 1961 there were approximately 1.92 persons producing goods or services for a demand originating outside of C.D. 12 for every person supplying goods or services to the local residents. This ratio is expected to drop to 1.37:1 by 1976.

The projected size of labour force in the primary and secondary industries was calculated on the basis of possible developments in the area, while that in the service sector was obtained by relating the percentage of labour force by the sector in the area to other parts of the province. A table showing the percentage of the labour force by sector in selected areas is also included on page 44.

It is likely that the residents of the area will continue to purchase substantial quantities of goods and services from outside of the area, particularly because of the improvement of roads and the lack of specialized services within the area, with the result that, even though the percentage of labour force in the trade sector will rise from 7.0% to 12.0%, it will remain substantially lower than the 16.4% provincially in 1961 or the 20% of major cities.

Figure 6 PROJECTED ADJUSTMENTS TO THE LABOUR FORCE: C. D. 12 - 1961-1976



* '0' on the horizontal scale represents state of labour force in 1961.

Table 17

LABOUR FORCE MODEL - C. D. 12, 1976

	Employment 1961		Estimated Employment 1976 1/				Estimated Export Employment		Estimated Percent Export	
	Number 1961	%	Full Time Number	Part Time Number	Man-year Equivalents Number	%	1961	1976	1961	1976
Agriculture	7274	46.2	5395	367	5578	25.1	6910	5299	95	95
Forestry	161	1.02	173	225	286	1.3	153	271	95	95
Fishing)&	259	1.65	22	140	205	0.9	246	195	95	95
Trapping)			3	220						
Mines, Oil & Gas	106*	.74	2375	200	2475	11.1	64	2455	60	98
Manufacturing	304	1.93	200	300	350	1.6	182	210	60	40
Construction	494	3.1	490	800	890	4.0	297	445	50	50
Transportation, Communication, & Utilities	1020	6.5	1456	200	1556	7.0	510	778	50	50
Trade - Wholesale & Retail	1102	7.0	2568	200	2668	12.0	110	267	10	10
Finance, Insurance & Real Estate	122	.78	445		445	2.0	2	9	2	2
Business, Community & Personal Services	2015	12.8	4247	400	4447	20.0	20	445	10	10
Public Administration & Defence	2425	15.4	3335		3335	15.0	1856	2501	75	75
	15,728	97.12*			22,235		10,350	12,875		

* Persons with no stated industry classification are not listed but are included in totals.

Estimated Population
Labour Force x 3.68 = 60,422

Ratio of Export to Domestic Employment: 1961-- 1.92:1 1976-- 1.37:1

1/ Special tabulations: Canada Department of Trade and Commerce; Labour Force, Occupation Divisions by Sex, Census of Canada, Vol. 3.1-8, Dominion Bureau of Statistics, 1961. Table 14.

Table 18

PERCENT OF LABOUR FORCE BY SECTOR - 1961 1/

	CANADA	ALBERTA	CALGARY AREA C. D. 6	EDMONTON AREA C. D. 11	RED DEER AREA C. D. 8	ST. PAUL AREA C. D. 12	PEACE RIVER AREA C. D. 15	ESTIMATED FOR 1976, C.D. 12	% OF WOMEN BY SECTOR		% OF TOTAL FEMALE LABOUR FORCE BY SECTOR	
									RED DEER AREA C. D. 8	ST. PAUL AREA C. D. 12	RED DEER AREA C. D. 8	ST. PAUL AREA C. D. 12
Agriculture	9.9	21.2	5.9	7.7	33.1	46.3	41.2	25.1	9.95	23.18	14.11	44.10
Forestry	1.7	.6	.1	.1	.3	1.0	3.6	1.3	2.35	5.59	.32	.23
Fishing and Trapping	.6	.2	.0	.0	.0	1.6	1.9	0.9	.00	.08	.00	.05
Mines and Minerals	1.9	3.5	6.3	2.9	3.8	.7	2.4	11.1	1.31	7.55	1.97	.21
Manufacturing	21.7	8.6	11.0	11.9	3.9	1.9	3.8	1.6	16.86	20.59	3.12	1.10
Construction	6.7	7.6	9.3	9.1	7.7	3.1	5.4	4.0	2.28	2.02	.76	.27
Trans. & Comm.	9.3	9.7	10.8	10.6	6.8	6.5	9.4	7.0	15.64	11.86	4.58	3.17
Trade	15.3	16.4	20.6	19.3	13.0	7.0	10.9	12.0	25.20	26.80	14.02	7.01
Finance	3.5	3.0	4.7	3.7	2.0	.8	1.3	2.0	43.42	48.36	3.63	1.54
Services	19.5	19.1	20.6	21.7	20.7	12.8	14.7	20.0	60.38	62.43	53.50	32.91
Public Administration	7.5	7.9	8.2	10.7	6.7	15.4	2.9	15.0	12.0	10.14	3.27	6.43
(Totals = 100% because of "other" categories)	(97.6)	(97.8)	(97.5)	(97.7)	(98.0)	(97.1)	(97.5)				(99.28)	(97.02)
Total Labour Force	6,472,150	489,511	122,507	156,267	26,125	15,728	25,050				6090	3823
Total Population	18,238,247	1,331,944	317,989	410,679	76,533	47,310	76,884					
% of Females in Labour Force	27.29	19.71	28.46	29.25	23.31	24.31	19.53					

1/ Special tabulations: Canada Department of Trade and Commerce; Labour Force, Occupation Divisions by Sex, Census of Canada, Vol. 3.1-8, Dominion Bureau of Statistics, 1961. Table 14.

On the other hand, because of the regional nature of services, along with the continued development of recreational resources, an assumption could be made that the activity within the Business, Community and Personal services will employ a percentage of the labour force near to the provincial average (20%) at 1961 even though there is a time lapse of fifteen years. Employment in Public Administration and Defence is difficult to estimate because of the uncertainty of the latter. For purposes of these projections it was assumed that this category would remain relatively constant; e.g. 15% of the labour force in 1976 compared to 15.4% in 1961.

It may be noted from an examination of the table that construction remains below the provincial average. This is partially explained because of the high percentage of seasonal workers in this industry in which this report deals with man-year equivalents. Furthermore, the percentage engaged in manufacturing remains low because there does not appear to be any major developments in sight for this sector of the economy.

The percentage of women in the labour force in C.D. 12 was higher than the provincial average in 1961, (24.3% compared to 19.7%), the last year for which reliable information was available. It is suggested that the percentage will remain reasonably constant within the area, although the number in agriculture will decrease and be at least partially compensated for by increase in trade and services.

SUMMARY OF ADJUSTMENTS REQUIRED

Agriculture

Farm sizes in C.D. 12 are too small to provide a resource base which will yield a satisfactory family income for most farm families. To rectify this situation it is recommended that farm expansion occur through land consolidation and land improvement programs. The objective of these programs is to add to the number of improved acres in each farm unit, thereby facilitating expansion of crop and livestock enterprizes.

The volume of agricultural products sold is also dependent upon the intensity of land use. Addition of fertilizer, expansion and improvement of livestock enterprizes, and the use of other technological and scientific advances increase output per farm, and hence raises the income of farm families. Possible improvements in crop and livestock production are discussed in the agriculture section of this report. It is imperative that every individual operator adopt the most efficient farming practices if farm family incomes are to increase. As more resources are managed by each farm operator and as complex scientific and technologic changes are made, farm management becomes increasingly important in attaining improved family income levels. An intensified program is recommended to achieve greater adoption of improved farm practices and for the advancement of "management" of farm units.

The growth in farm size and farm productivity increases capital requirements. It is essential that capital be made available in greater amounts for the expansion and improvements of farm enterprizes.

Because of adjustments in the size of farm units some of the farm families will leave agriculture. In addition it is the result of the 'pull factor' which eminates from higher salaries and wages in the non-agricultural sectors as well as the 'push factor' which stems from mechanization and which replaces labor on farms. To ease the exit of families from agriculture it is recommended that government provide the costs of education and relocation essential to the transfer or placement of people in other jobs.

To aid agricultural labor adjustments it will also be necessary to provide the following:

1. vocational and job counseling
2. testing programs
3. upgrading of basic educational skills and job placement

These are in addition to the education provided in training for a specific job or occupation.

Education

There are several problems in the field of education in C.D. 12. These include:

1. Low participation rate of the population age 5-24 years. (56.53% compared with 65.13% for Alberta).
2. Low education levels of those leaving the school system (46.7% have grade 12 compared with 60.6% for rural Alberta and 74.6% for Alberta cities).
3. Low proportion of teachers with 4 years of training (21% compared to 38% for Alberta.
4. The need for expanding facilities in the next 10 years. (At least 129 additional classrooms will be needed if the participation

rate rises to the Alberta average and the number of students per room increases from the present 23.26 to the Alberta level of 27.07).

Some of the programs needed to achieve the necessary changes in participation rates and educational levels of those leaving the school system are:

1. Pre-school programs - if all children, age five years, were to be involved in this program, then approximately 1,500 children per year could be expected.

2. Additional student counselling services.

3. Family involvement programs - to be accomplished through home visitor and leadership training and public affairs programs.

4. Adaptations and changes in elementary and high school programs. Some suggested changes could be: ungraded elementary programs and the addition of some vocational courses to high school programs.

5. Teacher training programs - approximately 105 teachers in C.D. 12 need additional training in order to bring C.D. 12 up to the provincial average.

6. Teacher aid programs - approximately 100 teacher aids could be used. These should be drawn from the local area, especially from people of Indian ancestry when the schools involved have students of Indian ancestry. Teacher aids could be used to increase the effectiveness of communication between students and teachers and vice-versa.

7. Teacher advisors with training in intercultural education.

8. Additional school facilities: Approximately 129 additional classrooms will be required by 1976.

The cost summary includes expenditures for additional school facilities, additional operating costs, pre-school programs, teacher aid programs, teacher training programs and 3 intercultural education advisors. Costs for family involvement are listed under the headings of home visitors and leadership training.

Vocational and Technical Training

There are a number of people in C.D. 12 at the present time who are unemployed or underemployed. Most of these people are of Indian ancestry or they are working in agriculture, fishing, trapping and forestry. At the present time, there is a vocational training school at Ft. McMurray, but any other vocational training must be obtained outside of the C.D. 12 area. A vocational training facility is being considered by the Alberta New Start Corporation at Lac La Biche and there will be some vocational facilities in the proposed Regional High School in St. Paul. In order to deal with present problems of unemployment and underemployment and the expected increased demand for skilled labour in expanding sectors of the economy, it is suggested that a program of retraining be undertaken. This program should include counselling services, training allowances and living allowances. It is expected that approximately 1,627 (1/4 of the projected increase in labour demand) people will need basic upgrading and about 2,169 (1/3 of the projected increase in labour demand) will need technical or vocational training. Two full-time counsellors will be needed to assist these people in decision making and other adjustments. The projected costs of retraining include moving allowances, living allowances, tuition and books, and counselling services.

Leadership Training and Public Affairs

Individuals act through groups to achieve some common goals and to provide for some of the common needs. Frequently, the individuals are not well informed on the issues involved, the relationship between the proposed and other projects or programs, or the socio-economic implications of various projects and programs. It is necessary to establish a program which would provide socio-economic public administration and other types of information to the public as well as to the leaders of the various community groups; public, semi-public or government agencies.

It is necessary for leaders in all organizations to gain public support for, and to develop community consensus on issues of various kinds. In order to develop wide public knowledge of social, economic and other trends and to develop and train strong and able local leaders, it is suggested that a specialist be hired to instigate co-ordinated leadership training and public affairs courses. The costs listed include this person's salary and a budget which would allow him to operate a diversified and extensive program.

Family Living and Home Improvement

Child rearing requires a good deal of understanding in the area of psychology and human development. The delinquency problem, emotional problems, school attitudes and behaviour, as well as other human characteristics are developed early in a child's life. It is important that parents and family members understand the growth and maturation processes of children.

Many human adjustment problems stem from a lack of information and lack of understanding in this field. A strong family living program is needed to educate parents and family members about human growth and development to prevent problems which lead to individual maladjustments and great social costs in welfare, mental and physical health, and lack of happiness and productivity.

In addition, it has been adequately demonstrated that individual initiative and imagination can lead to improved home comforts. To develop skills involved in creation of better homes it is recommended that a home improvement program be established to deal with interior home design and home decoration; furnishings, and other areas related to home improvement.

Costs listed under this program include home economics extension and a home visitor program. These home visitors should be drawn from the local area and receive training in several disciplines. They should also be able to increase family awareness of opportunities and problems in education, retraining, adult education, and health. Costs also include four family counselling specialists who are to be directly in charge of the home visitor program.

Housing

Generally the condition of dwellings in C.D. 12 is in need of improvement. Many of the homes need water and sewer installations, furnace heating, and some need electrification. The section on housing in this report describes the present condition of homes and major home appliance needs of home owners in the region. It is recommended that capital be made available through improved loan arrangements.

In addition it will be necessary to provide rural home improvement incentive grants which would stimulate construction and major home improvements such as the items listed above.

Health, Education Services

Health problems in C.D. 12 include a lack of medical staff, and a high incidence of some diseases. There is one doctor for every 2,202 persons in C.D. 12 compared to one doctor for every 894 people in Alberta. There is one dentist for every 12,659 people in C.D. 12 compared to one to 3,000 in Alberta. Two of the diseases which occur frequently in C.D. 12 are tuberculosis and infectious hepatitis. In C.D. 12 the incidence of tuberculosis is 39 cases per hundred thousand of the population while the frequency for the province is 24 per hundred thousand. The incidence of infectious hepatitis in C.D. 12 is 118 per hundred thousand compared to 62 per hundred thousand in Alberta. These statistics point out the need for additional doctors and dentists, for better sanitation and for increased use of preventive services. It is suggested that 20 non-professional health workers could be useful in promoting increased use of preventive services and more effective use of other medical facilities. The home economics extension program could also aid in the areas of diets and sanitation. The projected costs include health education aids, but do not include additional doctors and dentists.

Fishing

The whitefish catch, which provides the most revenue seems to be on the upturn position of a cycle. If past trends are an indication then this upswing will continue to 1978 at which time it would begin to decline again.

The tullibee catch depends entirely on the mink farming situation. In the last two years a surplus of furs has existed in the world markets and prices are depressed. If prices do not improve and the industry cannot compensate by increasing efficiency, a number of operations in the area will cease. Another possibility is that increased size of operations may lead to even lower per pelt costs. If this is the case a trend to larger and fewer fur farms will be a necessity if any operations are to continue. The net result may be that the demand for tullibee will remain strong.

In any case there are too many fishermen in the industry at the present time. Few, if any, can earn an adequate income from their fishing operations alone. Measures must be adopted which would result in viable employment for a much smaller number of fishermen.

Forestry

Output will quadruple by 1976 and amount to about 87 million board feet. The major influence will be the production rise from practically nothing to 15 million board feet at McMurray where a sawmill-planer mill complex has been built. A smaller effect will be felt in Wood Buffalo Park where present output will double to 30 million board feet. Since all of the logs are trucked to High Level, the major employment effects will be concentrated there. Output from the Lac La Biche forest will double, with the attendant employment effects centred around Wandering River and Lac La Biche.

The anticipated changes in the forest industry will come about through the private sector. There are, however, a number of government measures which could be implemented during the intervening period.

Training services for sawyers, fellers, machine operators and other skilled occupations might be provided. At the present time, there is no surplus of this labour and to prevent shortages from developing, training programs should be emphasized.

The addition of more transportation routes would benefit the industry and would lead to more full-time operators, as summerproduction expanded. A secondary benefit which should be noted is that more roads in this region would provide access to areas which might be suitable for tourist facilities, commercial fishing operations or some other resource development. However, further research would be required to determine the benefit-cost ratio of expenditures on this type of project.

It is most important that a careful check be kept on the forest industry in C.D. 12 because timber stands are quite scattered and do not present the most profitable opportunity for development. Assistance, such as the above, which can be justified on the basis of improving local employment opportunities by decreasing some of the industry costs of production, should be studied thoroughly. This is not to suggest that any direct subsidization of private industry be undertaken, but rather that measures which could assist industry be studied in the context of regional employment and/or the total effects on the region.

Mining

Tar Sands production can be expected to reach a minimum of 150,000 barrels per day by 1976 which involves the construction of one new plant. The result of this will be a large population centre of perhaps 10,000 people either at McMurray or within a 20 mile radius.

This area is perhaps the most promising, in terms of income and employment criteria, of any in C.D. 12.

The provincial government is attempting to obtain either the land or the right to the gypsum deposits in Wood Buffalo National Park. By 1976 a satisfactory arrangement may have been Worked out. One major influence in this possible development is the profitability of the Alberta Resources Railway. If this government sponsored project is a success it would lend support to the construction of a rail link to the gypsum deposits. Alternatively, should the sulphur traces near Wood Buffalo Park prove to be an economic deposit, a rail line might be required to move it. This would bring the gypsum deposits that much closer to a railhead.

Salt production will rise gradually to 1976.

Fur Trapping

Revenue from fur-trapping could be doubled in C.D. 12 without disturbing the conservation aspects. Measures must be adopted especially among the Indian population which would result in a significant increase over the present annual average of $180 per trapper. Trappers should be encouraged to trap during the fall, winter and spring seasons only. This industry will retain its present haphazard structure unless certain proposals are introduced. These are discussed in more detail in the appropriate section of this report.

Manufacturing

A slow growth in manufacturing is forseen with particular emphasis on agriculturally oriented production (e.g. feed-mills). In addition, local industries will expand as population grows. At the moment the establishment of tar sands linked manufacturing output is questionable. However, another extraction plant in the area would strengthen any agglomerative tendencies and certain checical processing firms will probably locate there.

AGRICULTURAL INDUSTRY AND AGRICULTURAL ADJUSTMENTS

Concepts Involved in Agricultural Development and Adjustment

Predictions of changes in agricultural production are frequently made by simply projecting certain trends. Such predictions have obvious difficiencies. To establish trends, it is necessary to identify and separate short-run and long-run tendencies. It is also necessary to establish interactions and relationships between various sectors of the agricultural economy. For example, the development of the dairy industry may impose capital requirements which will limit related, but nonetheless, essential land development. The imporovement of one sector may be possible only if simultaneous development occurs in another sector. Hence, agricultural development in a region must involve an analysis of the total agricultural system.

The systems' analysis approach deals with the aggregate decisions and goals of individual farm operators. The individuals make the choices. Individuals decide whether they will enter into dairy, crop, or any other type of farming and how their enterprise will be managed. Regional economic analysis provides individual farm operators and others interested in development and adjustment, information about resource limitations, information about the possibilities for development; and what combination of factors are needed to achieve possible developments. Because this approach to regional development uses as its basis individual decisions and private enterprise as the prime source of development, the extent to which possible development is realized will be determined by the resourcefulness and initiative of private farm operators. This approach places emphasis on application of information and management in order to achieve effective agricultural development.

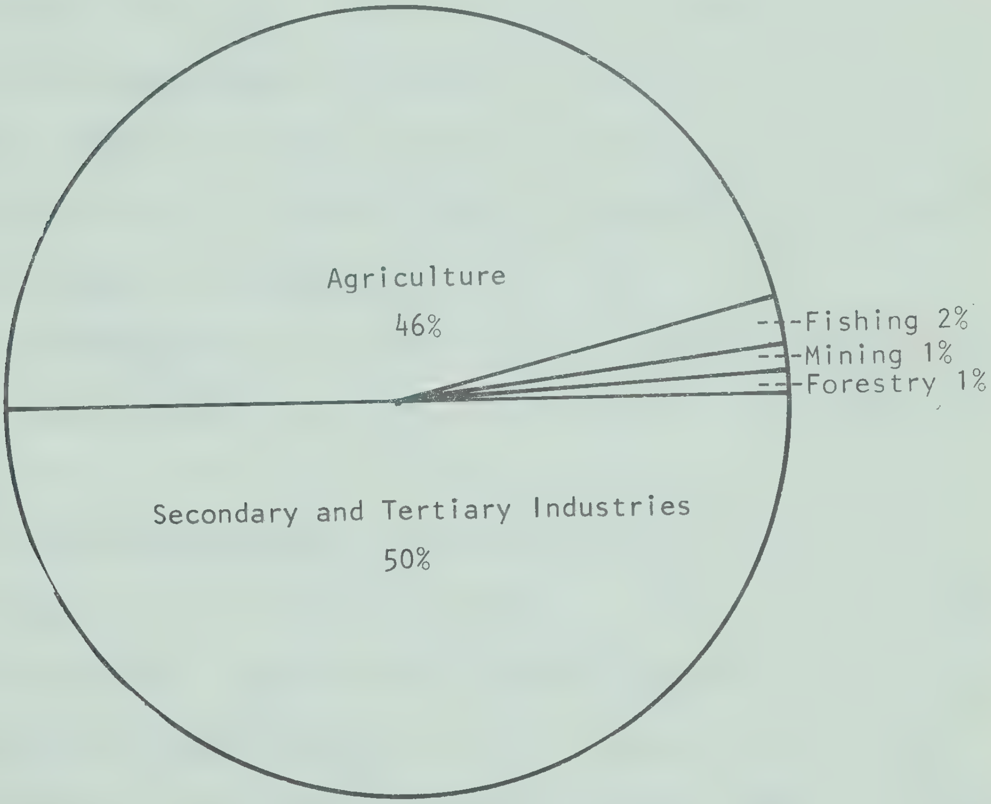
In evolving estimates of development in C.D. 12, it was necessary to reconcile trends with needs; also with resource availability, and with relationships between sectors in the agricultural industry. For example, trends indicate that by 1976, there would be 1,209,000 acres of improved land in the region if the present rate of land improvement continues. If one was to assume that each farm family needs a family income of $3,000 annually, then each farmer would need to have a farm 958 acres in size with 479 improved acres assuming the present type of farm operations and present price relationships. This arrangement would indicate a need for 1,500,000 improved acres. A third estimate of improved acreage is derived by anticipating developments in the livestock industry; application of new science and technology, such as increased fertilizer use; and continued improvements in farm management. Under this systems' analysis approach, the improved acreage in the region by 1976 is estimated at 1,380,000 acres. This assessment of the prospects for improving crop acres is based on dynamic growth conditions in the various sectors of the agricultural industry. It includes projections of certain activities by individuals and also anticipates assistance from governments.

Government assistance will be necessary for those programs or projects which cannot be developed through private initiative and when it is the public interest to have governmental injections. For example, the capacity of agricultural production is determined not only by the amount of arable land, but also by the productivity of the soils. Hence, expanding the crop acreage has the same impact on agricultural production as improving of drainage, irrigation, or fertilizer applications. However, some of the programs associated with these practices require long-run investments, some of which will require governmental assistance. In addition, where groups of farmers are affected and a problem is beyond the solution of individual operators, (for example drainage) governmental assistance is necessary. Because of the scarcity of capital, improved loan arrangements and governmental grants are necessary for agricultural improvement programs in C.D. 12, outlined in this report. Governmental assistance is deemed necessary for the improvement of the environment; where groups are affected; where long-run investments are essential; and where the public interest is involved. In additon, the benefits from some social activities are real but difficult to measure. For example, the benefits from educational programs accrue to society in general as well as to the individual. Because the development and adjustments of human resources in C.D. 12 is of a general nature and there is concern with the improvement of the general welfare of people in this region due to low incomes, it is recommeded that the cost of the educational programs, counselling, public affairs, and relocation be paid by the government.

Some economists contend that labour and management costs should be included in benefit-cost analysis. For several reasons, these costs were not entered into the budgets shown in this report. First, most farm families provide their own farm labour and may not have an alternate use for this labour without additional training or relocation. Secondly, the farm family makes all of the operational decisions and does the farm planning. Labour and management are so related that assignment of costs to these factors would be arbitrary and artificial. Returns after farm costs are considered as family income or returns to labour and management.

There were 15,728 people employed in the four primary industries in C.D. 12 in 1961. The sectoral employment and percent of the total employed is shown below:

Figure 7 DISTRIBUTION OF EMPLOYMENT BY SECTOR IN C. D. 12 - 1961 [1]



Secondary and tertiary industires and defence employed the remaining 50% of the labour force. The ratio of primary to secondary and tertiary employment was 1:1. Using this ratio, agriculture generated 14,548 jobs in primary, secondary and tertiary industries in C.D. 12.

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[1] Special tabulations: Canada Department of Trade and Commerce; Labour Force, Census of Canada, Vol. 3.1-12, Dominion Bureau of Statistics, 1961. Table 17.

AGRICULTURE

General

Agriculture is the most important industry in C.D. 12. The value of products sold by four primary industries in C.D. 12 in 1961 totalled $14,260,000. The contribution by sector as a percent of the total follows:

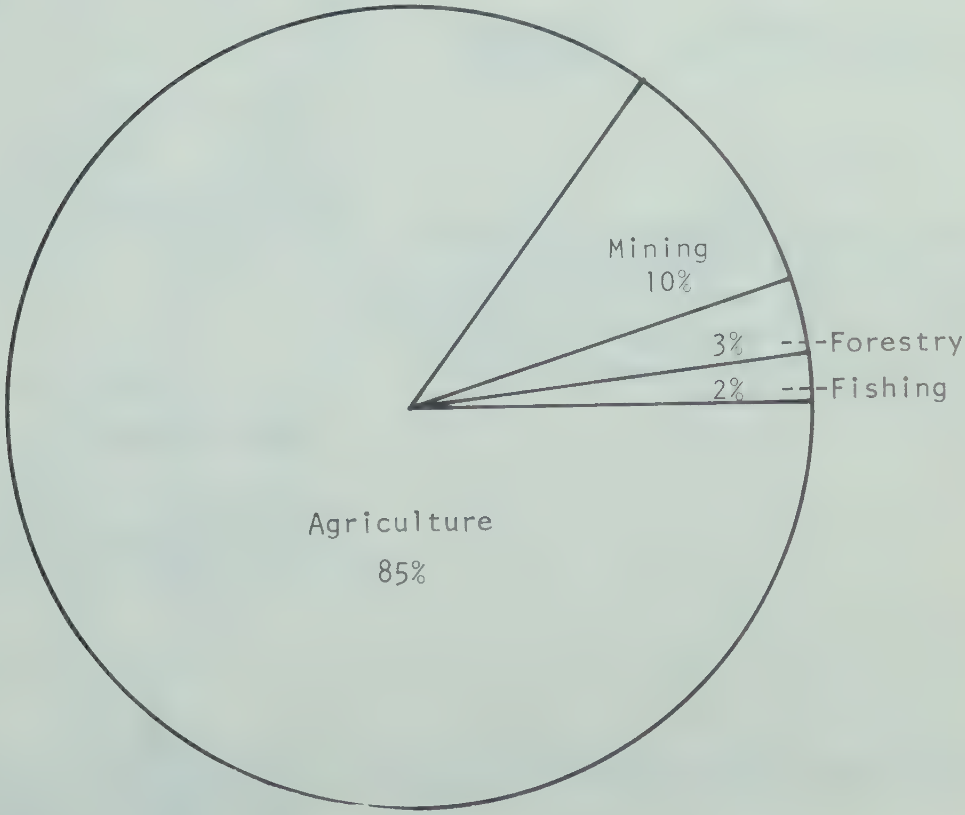
Agriculture - 85%

Mining - 10%

Forestry - 3%

Fishing - 2%

Figure 8 DISTRIBUTION OF PRODUCTION BY SECTOR* IN C. D. 12 - 1961 [1]



* 100% = $14,260,000

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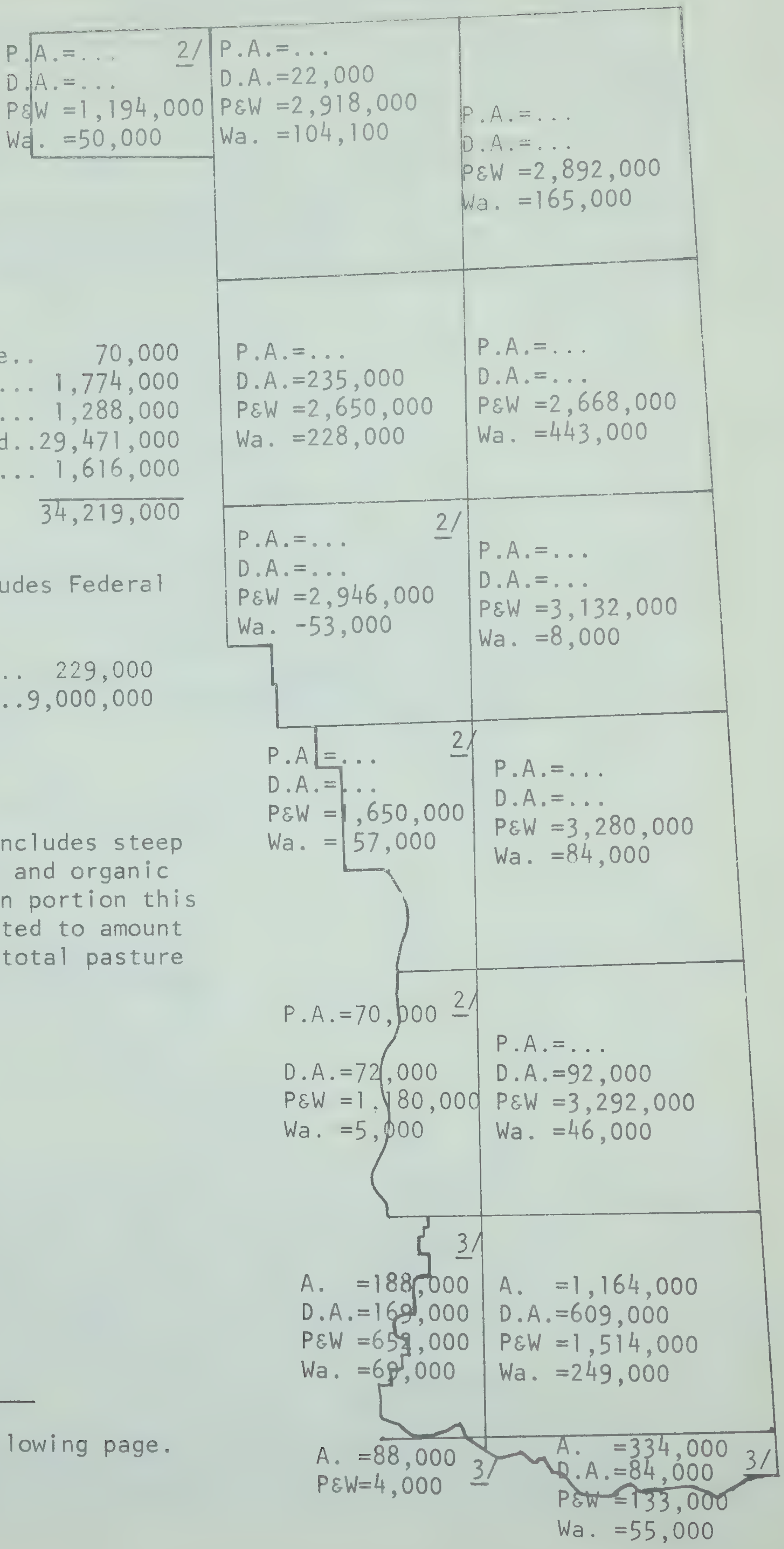
[1] The data represented in the above figure was derived from several Census of Canada volumes, too numerous to list here, and specially tabulated.

Figure 9 SOILS IN C. D. 12 BY SOIL SURVEY AREA



Total - C. D. 12[1]

P.A.=Potentially Arable..	70,000
A. =Arable..............	1,774,000
D.A.=Doubtful Arable.....	1,288,000
P&W =Pasture & Woodland..	29,471,000
Wa. =Water...............	1,616,000
	34,219,000

The above acreage includes Federal lands.

1. Indian Reserves..... 229,000
2. Wood Buffalo Park...9,000,000

Pasture and woodland includes steep land, very sandy land, and organic soils. In the southern portion this kind of land is estimated to amount to 90 per cent of the total pasture and woodland acreage.

For footnotes, see following page.

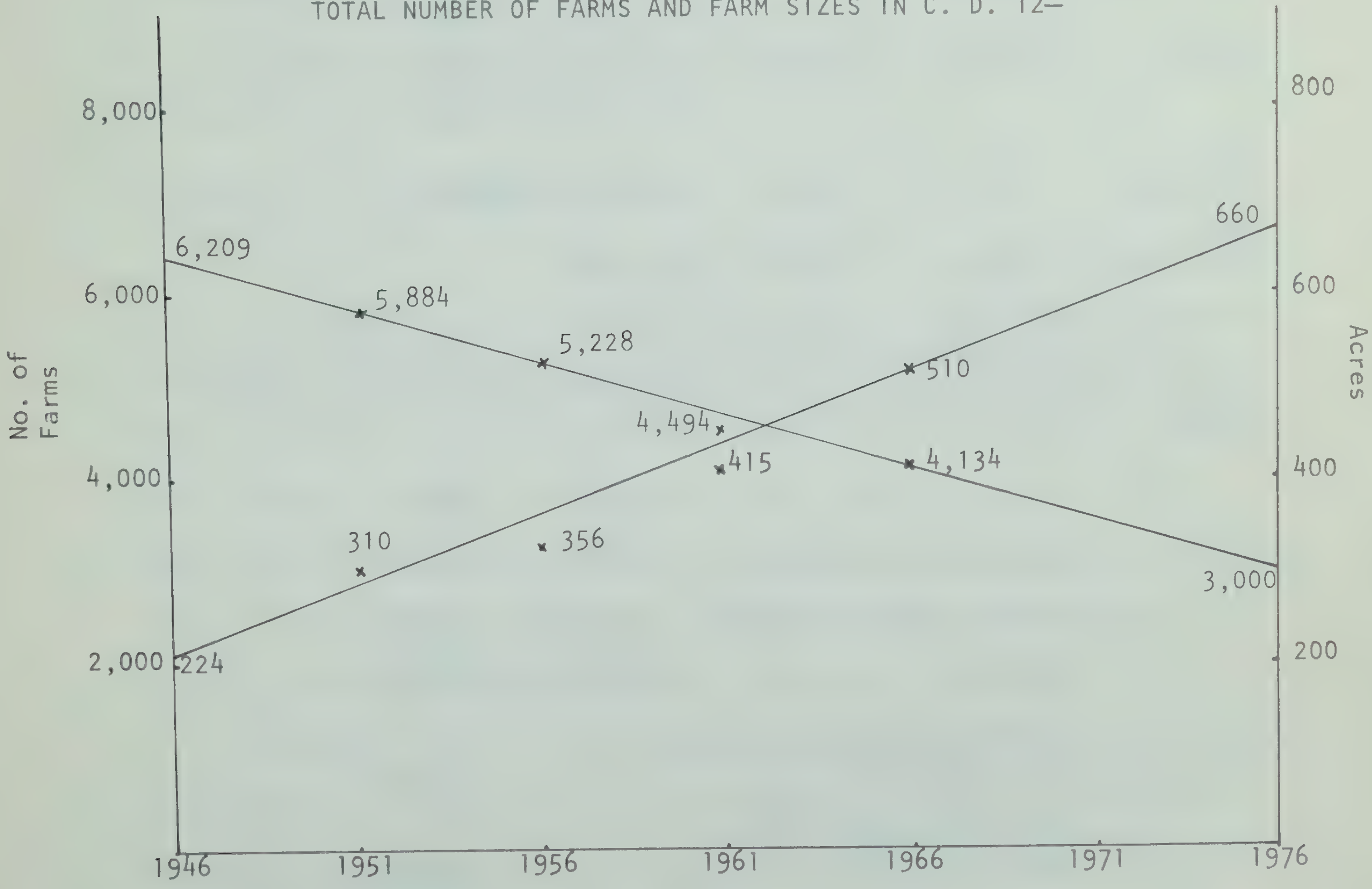
1/ Preliminary Soil Survey Reports 58-1, 59-1, 60-1, 61-1, 62-1, 63-1, 64-1, 64-2; Exploratory Soil Surveys, Research Council of Alberta, Edmonton, Alberta.

2/ Three of the soil survey areas are partially in C. D. 12. Estimates for these areas were made from visual observations of maps in the literature cited above.

3/ Special tabualtion by A. A. Kjearsgaard, Canada Department of Agriculture, University of Alberta, Edmonton, Alberta. (private communication) Preliminary soil surveys indicate the land area of C. D. 12 as 34.2 million acres or 2.0 million acres more than the 32.2 million acres shown in the 1961 Agricultural Census. The 1.6 million acres of water and a margin of error in the partial soil survey areas where visual estimates were made of maps account for the difference in the two figures.

Figure 10

TOTAL NUMBER OF FARMS AND FARM SIZES IN C. D. 12[1]



Since 1946, the trend has been toward fewer but larger farms in C.D. 12. If these trends are projected, it appears that by 1976 there will be 3,000 farms averaging 660 acres each.

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[1] Special tabulations, Rural Development Research Branch.

Table 19 IMPROVED LAND AND PERCENTAGE OF LAND IMPROVED 1/
C. D. 12 : 1946-76

Year	Average Improved Acres/Farm	No. of Farms	Total Improved Acres	Total Acres In Farms	% of Farm Acres Improved
1946	110.9	6,209	688,410	1,393,944	49.0
			+ 2,507	+433,243	
1951	117.4	5,884	690,917	1,827,187	37.7
			+182,469	+ 34,049	
1956	167.1	5,228	873,386	1,861,236	46.9
			+ 72,468	+ 6,755	
1961	210.5	4,494	945,854	1,867,991	50.6
			+ 89,376	+240,055	
1966	250.0	4,134	1,035,230	2,108,046	49.0
			+173,410	+357,050	
1976* (assumed)	402.8	3,000	1,208,640	2,465,096	
1976 (possibility)	479.0	3,000	1,437,000		

* The average change of the total improved acres from 1946-66 is projected for 1976. Dividing 1,209,000 acres by the number of farms assumed for 1976 (3,000), there would be 403 crop acres in each farm in 1976.

	1961	1966	
Improved Land in Farms	945,854	1,035,230	
Unimproved Land in Farms	922,137	1,072,816	
Sub-Total	1,867,991	2,108,046	
Patented Arable Land Which Can be Improved		500,000	
Crown Arable Land Which Can be Improved		44,000	
TOTAL ARABLE LAND IN WHITE AND YELLOW ZONES 2/			1,579,230

1/ Canada Department of Trade and Commerce; Agriculture, Census of Canada, Bulletin A-203, Dominion Bureau of Statistics, 1966. Table 13 and special tabulation of this and other census data by Rural Development Research Branch.

2/ Provincial Department of Lands and Forests estimates for the Yellow and White Zones. Note the higher estimate of 1,774,000 arable acres estimated through preliminary soil survey reports.

Economic Level of Agriculture in C. D. 12

The estimated average farm gross income* is shown below:

Table 20 GROSS ANNUAL FARM INCOME ALBERTA & C. D. 12[1/]

Year	C.D. 12 Average Gross Income/Farm	C.D. 12 Number of Farms	Alberta Average Gross Income/Farm
1961	$3,152	4,494	$6,456
1966	$3,950	4,124	$8,079

* The estimate was derived by multiplying the median of the income class by the number of farmers in the class. The highest group was estimated at $40,000 per farm.

The number of farms and percent in the various grouping for 1966 is shown in Table 20 on page 71.

The Economic Lag in Agriculture

The extent of the economic lag in agriculture in C. D. 12 is shown in the table above. This lag must be corrected through development and adjustments in both human and physical resources. The productivity of farm land may be improved through use of fertilizers, better farm management practices, improvements in pasture and forage programs, as well as application of other intensive practices which are economically profitable for the area. Farm operations may be expanded through land clearing and growth in farm size to achieve greater economics of scale.

The economic lag is also a factor in human development. Farm business operators require a great degree of competence in management, business operation and administration, proper use of credit, and other information

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[1/] Canada Department of Trade and Commerce; Agriculture, Census of Canada, Bulletin A-204, Dominion Bureau of Statistics, 1966 and Bulletin 5.3-3 (1961). Special tabulations, Rural Development Research Branch.

Table 21

NUMBER OF FARMS IN SUBDIVISIONS OF C. D. 12 BY INCOME CLASS[1/]
1961 - 1966

Subdivision		COMMERCIAL FARMS									
		Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Part-Time & Others	Residential	Total
		25,000 & Over	15,000-24,999	10,000-14,999	5,000-9,999	3,750-4,999	2,500-3,749	1,200-2,499	250-1,199	250	
I.D. 85	1961	--	--	---	---	1	2	5	4	3	15
	1966				1	---	---	6	8	11	26
I.D. 101	1961	--	--	1	22	33	57	82	82	48	325
	1966			3	32	46	40	55	74	46	296
I.D. 121	1961	--	--	---	---	---	---	---	1	1	2
	1966								---	---	0
I.D. 102	1961	--	7	15	44	40	78	165	187	94	630
	1966		9	22	71	62	72	135	123	85	586
Smoky Lake	1961	--	3	14	122	148	217	305	228	54	1,093
	1966	4	16	42	252	117	161	209	129	65	997
St. Paul	1961	2	6	27	211	170	251	321	280	101	1,369
	1966	8	26	71	296	163	178	263	185	87	1,271
Bonnyville	1961	1	4	17	114	106	185	239	206	69	941
	1966	4	13	46	171	104	142	185	155	75	895
Indian Reserve	1961	0	0	1	1	0	3	11	53	40	109
	1966	0	0	0	2	0	3	10	25	13	53
TOTAL	1961	3	20	75	514	498	795	1,130	1,041	410	4,484
	1966	22	64	184	825	492	596	860	699	382	4,124

[1/] Income consists of sale of farm products only

Institutional farms $\frac{1961}{1966}$ ---- $\frac{10}{10}$

Canada Department of Trade and Commerce, Agriculture, Census of Canada, Bulletin A-204, Dominion Bureau of Statistics, 1966. Table 15 and Bulletin 5.3-3 (1961). Special runs by Dominion Bureau of Statistics (unpublished) which will aid in wise selection of economic alternatives. Education programs need to be provided to develop insights and increase understanding of farm business operations. Education programs also need to be provided to train employable individuals leaving agriculture for other occupations.

Extent of Agricultural Adjustment

The relationship of gross farm income to the number of improved acres is shown in Table 21. The data is based on a survey of farm operators conducted by the Alberta Department of Agriculture, Economics Division, in C. D. 12 in 1966. Mink farmers and ranchers with livestock incomes over $4,000 per year were excluded from the data to achieve greater uniformity in the type of operations for the purpose of this analysis.

Table 22 IMPROVED ACRES AND NET INCOME [1/]

	Average	Standard Deviation	R^2
Gross Farm Income	$3,355	$2,570	48.65
No. of Improved Acres Operated	231*	141	

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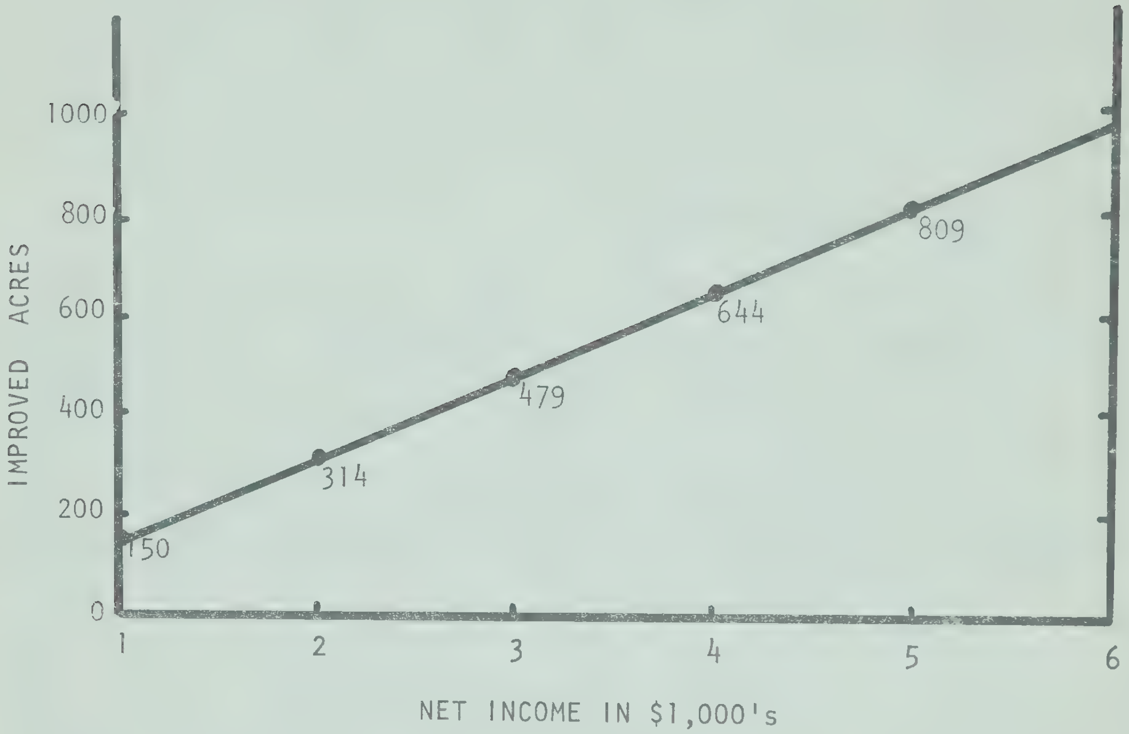
* The 231 acre average indicated in the survey is lower than the 240 acre average in the 1966 D.B.S. figure.

Janssen calculated the number of improved acres required to yield selected net farm incomes under current price relationships and technology. He assigned 40 per cent of gross farm income as net income to arrive at the following:

1/ Janssen, V. T., et. al, Rural Development Research Branch, Economics Division, Alberta Department of Agriculture, Edmonton. (Special tabulations· unpublished data.)

Figure 11 THE RELATIONSHIP BETWEEN NET FARM INCOME[1]
AND IMPROVED ACRES - ALBERTA



If a farm family desires $3,000 of net income, one of the critical factors is the acquisition of sufficient improved acreage which under current conditions and farming practices means possession of 479 acres. However, the acreage required varies with the level of management, prices of farm inputs and outputs, type of farm, soil fertility, and other factors.

If a $3,000 net farm income can be derived from 479 improved acres, then 1.5 million arable acres of ARDA Class 4 or better soil in C.D. 12 would support 3,100 farm units. This would be a decrease of 1,000 farm units from the 4,134 farm units in C.D. 12 in 1966. Since 25% of the farm operators interviewed in the Economics Division[2] survey indicated their willingness to sell their farm, a total adjustment of 1,000 farms may be expected. In the period 1961-66, 360 farm units[1/] were consolidated or otherwise closed out, which is a somewhat slower rate of farm close-outs than indicated above.

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[1] Janssen, V. T. et al, Agriculture, Census Division Number 12, Rural Development Research Branch, Economics Division, Alberta Department of Agriculture, Edmonton, Alberta, 1967. p. 26.

[2] Ibid.

The rate of future close-outs will be influenced by:

- income goals of farmers
- change in type of farms (e.g. intensive operations such as swine, poultry, and dairy can provide families with a living, on less land)
- adoption of a higher level of technology (e.g. use of fertilizer)
- input and output prices and other factors.

However, if the rate of land improvement for the period 1946-66 is projected to 1976, there would be 403 improved acres in each farm unit. This rate of growth is too slow to achieve 479 improved acres per farm, which are needed to provide each farm family with $3,000 annual net income, (assuming current prices and levels of technology). To achieve 479 acres per farm, 400,000 acres of land must be improved by 1976. This means doubling the present rate of land improvement.

Where Agricultural Adjustments are Expected

Farm management studies indicate that family income is 40 per cent of the gross farm income. On this basis, if a farm family desires an income of $3,000, Class 4 in Table becomes a marginal gross income group. Classes 5, 6 and 7 would not produce the desired $3,000 family income. Part-time and residential farm units are not considered with commercial farms in Classes 1-7 in Table . Most of the decline in number of farm units is expected to come in Classes 5 - 7. The number of small farms in Classes 5 - 7 in sub-

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[1/] Canada Department of Trade and Commerce, Agriculture, Census of Canada, Bulletin A-203, Dominion Bureau of Statistics, 1966. Table 13.

divisions of C. D. 12 is shown in Table 20.

THE LIVESTOCK INDUSTRY IN C. D. 12 [1]

The table below shows the Livestock numbers for a fifteen year period:

Table 23

LIVESTOCK ON FARMS
C. D. 12

	1951	1956	1961	1966	Possible For 1976 [1]
Cattle					
Cows & Heifers (2yrs. & up) (Dairy)	27,399	21,292	20,478	16,076	10,000
Farms Reporting	NA	3,932	3,266	2,487	
Cows & Heifers (2yrs. & up) (Beef)	8,988	16,394	23,107	45,785	70,000
Total Cattle	56,727	84,367	98,637	136,101	183,000
Farms Reporting	NA	4,439	3,829	3,405	
Pigs					
Sows (6 mos. & up)	NA	30,945	13,692	11,141	13,500
Total Pigs, Nos.	72,262	108,627	128,548	84,902	189,000
Farms Reporting	NA	3,823	3,300	2,510	
Sheep					
Ewes, Rams & Wethers (1 yr. & up)	NA	6,049	8,911	3,796	3,000
Total Sheep, Nos.	9,540	10,921	15,802	7,251	
Farms Reporting	NA	672	504	289	
Hens & Chickens					
Hens & Pullets (6 mos. & up)	136,674	140,704	108,339	79,025	
Total Hens & Chickens	NA	524,122	493,517	391,550	
Farms Reporting	NA	3,989	3,354	2,706	
Turkeys					
Turkey Nos.	NA	53,085	74,598	18,223	
Farms Reorting	NA	736	813	648	
Ducks & Geese					
Duck & Geese Nos.	NA	10,246	7,579	5,965	

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[1] The livestock data that follows, unless otherwise footnoted, was derived from the following Dominion Bureau of Statistics sources: Bulletin A-206, 1966; Vol. 5.3-3, 1961; and special runs (unpublished). This data was specially tabulated and illustrated by Rural Development Research Branch. Canada Department of Trade and Commerce; Agriculture (several volumes), Census of Canada, Dominion Bureau of Statistics. (1961 and 1966)

The livestock Situation

Returns per animal sold by farmers in C.D. 12 are low when compared to the returns of Alberta farmers as a whole. The following table shows livestock indexes derived by dividing the total income from a particular type of livestock by the number of animals in basic herds or flocks.

Table 24 COMPARISON OF RETURNS ON SELECTED FARM PRODUCTS ALBERTA AND C. D. 12 - 1961-1966[1]

	Alberta	C.D. 12	
		1961	1966
Cattle	1.00	.47	.53
Hogs	1.00	.84	.72
Sheep and Wool	1.00	.65	.80
Hens, Chickens and Eggs	1.00	.27	
Turkeys	1.00	.96	
Other Poultry	1.00	.75	
Dairy Products	1.00	.54	.52

The low returns per head of cattle sold reflects primarily a practice of vealing-out calves from comparatively small dairy herds. In 1966, farmers with livestock in C.D. 12 averaged 40 head per herd while dairy herds averaged 6.5 milk cows per herd. Improvements in breed quality, feeding and management, and other factors are expected to lead to increased income from cattle.

Hog and sheep returns are also lower for C.D. 12 than for the province in general.

Dairy income per herd is low. An increase in the number of cows in dairy herds, as well as imporvements in dairy feeding, breeding and management will help to improve the lag in dairy income.

Becuase of the relatively large number of small farms with a preponderence of dairying, it is essential to implement an effective dairy education program to make dairying in the region much more efficient.

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[1] Rural Development Research Branch, Agriculture, Census Division 12, Economics Division, Alberta Department of Agriculture, Edmonton, Alberta, 1967. p. 14.

DAIRY IMPROVEMENT PROGRAM

Table 25 DAIRYING BY SUB-DIVISIONS OF C. D. 12[1/]
PRODUCTION AND MILK-USE

	1961	1966	Possible for 1976
Cows and Heifers - 2 yrs. and over	20,478	16,076	10,000
I. D. - 85	19		
- 101	1,487		
- 102	2,010		
- 121	-		
- 143	-		
Bonnyville, M. D. 87	5,120		
St. Paul	7,108		
Smoky Lake Co. 13	4,574		
Wood Buffalo National Park	-		
Indian Reserves	160		
Farms Reporting Dairying	3,266	2,487	
*Total Milk Production- Annually	103,076,520		
Cows Per Farm	6	6.5	
Milk Production Per Cow	5,034		8,571
B. F. Per Cow	176		300

MILK USE[2/]

	1961	1966	Estimates for 1976
* Sold as Whole Milk	3,740,280		32,000,000
% of Total Production	3.6		40
- Sold as Cream but Expressed as Milk (10# Milk -1# Cream)	75,613,200		40,000,000
% of Total Production	73.4		50
Expressed as Butter Fat	2,646,462		
- Home Use as Milk, Cream, Butter Livestock Feed, etc.	23,723,040		8,000,000
% of Total Production	23.0		10

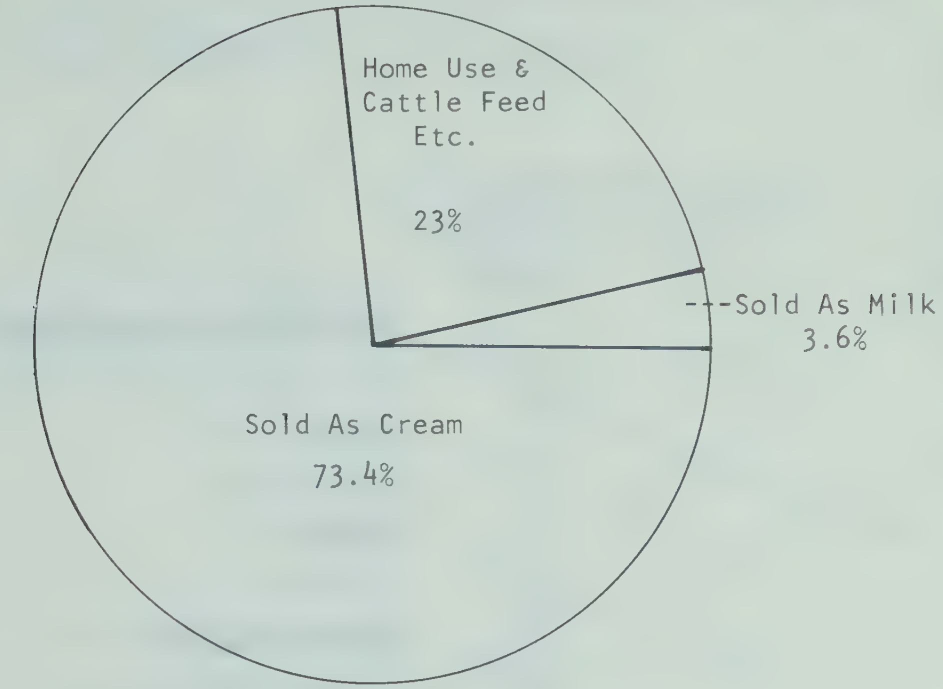
Creameries in C. D. 12 manufactured 2,189,000 lbs. B. F. in 1965 (Bonnyville, St. Paul, Vilna, Glendon, and Elk Point.)

* May average multiplied to get annual production. Assumed that B.F. in 10# milk=1# of cream and 28.6# milk=1# of butter; milk=3.5% B.F.: cream = 35.0% B.F.

[1/] For footnote, see Page 68.

[2/] For footnote, see Page 68.

Figure 12 MILK USE - C. D. 12[1/]



Factors which favour dairying in C. D. 12 are the relatively small farm units and the accompanying local labour supply; climate and soils are suited for forage and cereal grain production; present investment in dairying; as well as other factors. Forces working against the industry are low production per dairy cow (5,034# of milk - 176# of B.F.); small herds (6.5 cows); prices of butter substitutes (margarine); and inadequate capitalization in barns, dairy cows, and equipment on the dairy farms.

Intensive education, testing and breeding programs are needed to increase the very low dairy cow production - 176# B.F. per cow. Production should approximately double to achieve efficiency and economic viability in the industry. It is expected that the number of small dairy herds will

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[1/] For footnote, see Page 68.

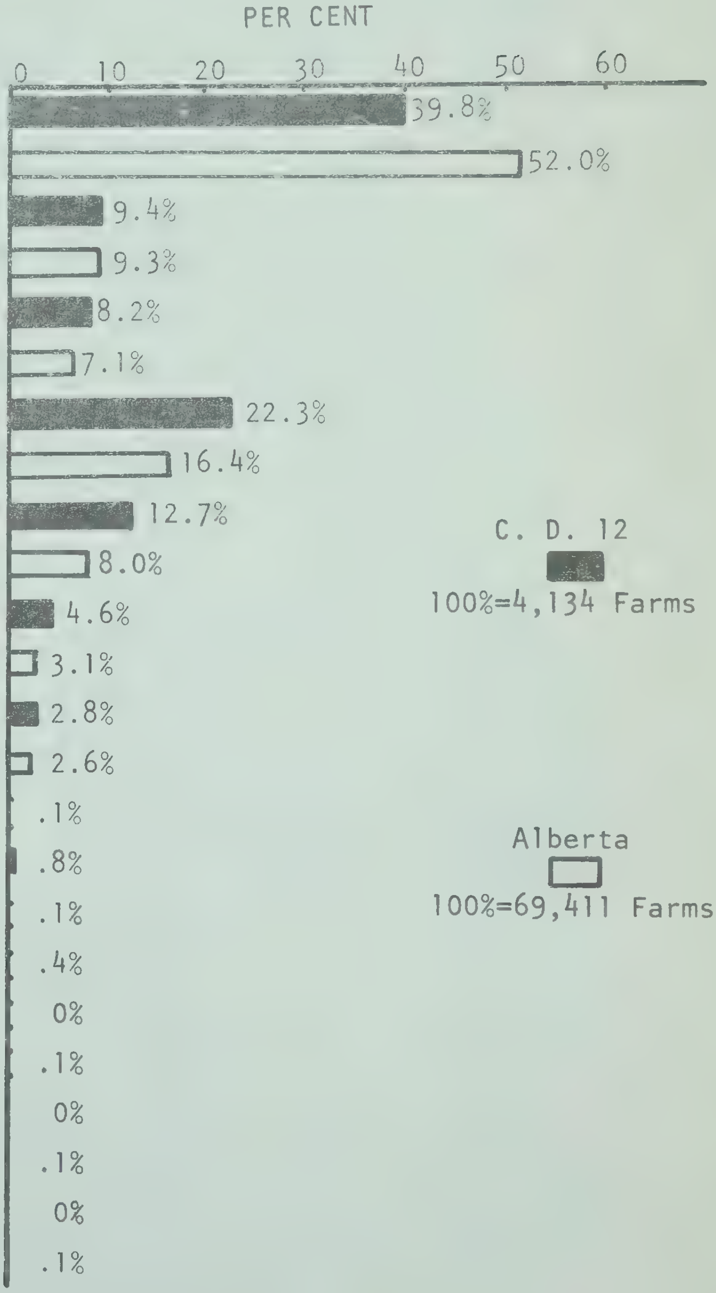
Figure 13

DAIRY COWS

CLASSED HERD SIZES AND PERCENTAGE OF FARMS IN EACH CLASS

ALBERTA AND C. D. 12 (1966)[1]

Number Of Cattle	Number Of Farms C. D. 12	Number Of Farms Alberta
0	1,647	36,177
1	391	6,454
2	339	4,955
3- 7	925	11,416
8- 12	524	5,560
13- 17	184	2,195
18- 32	116	1,778
33- 47	5	495
48- 62	3	208
63- 77	0	73
78- 92	0	46
93+	0	54



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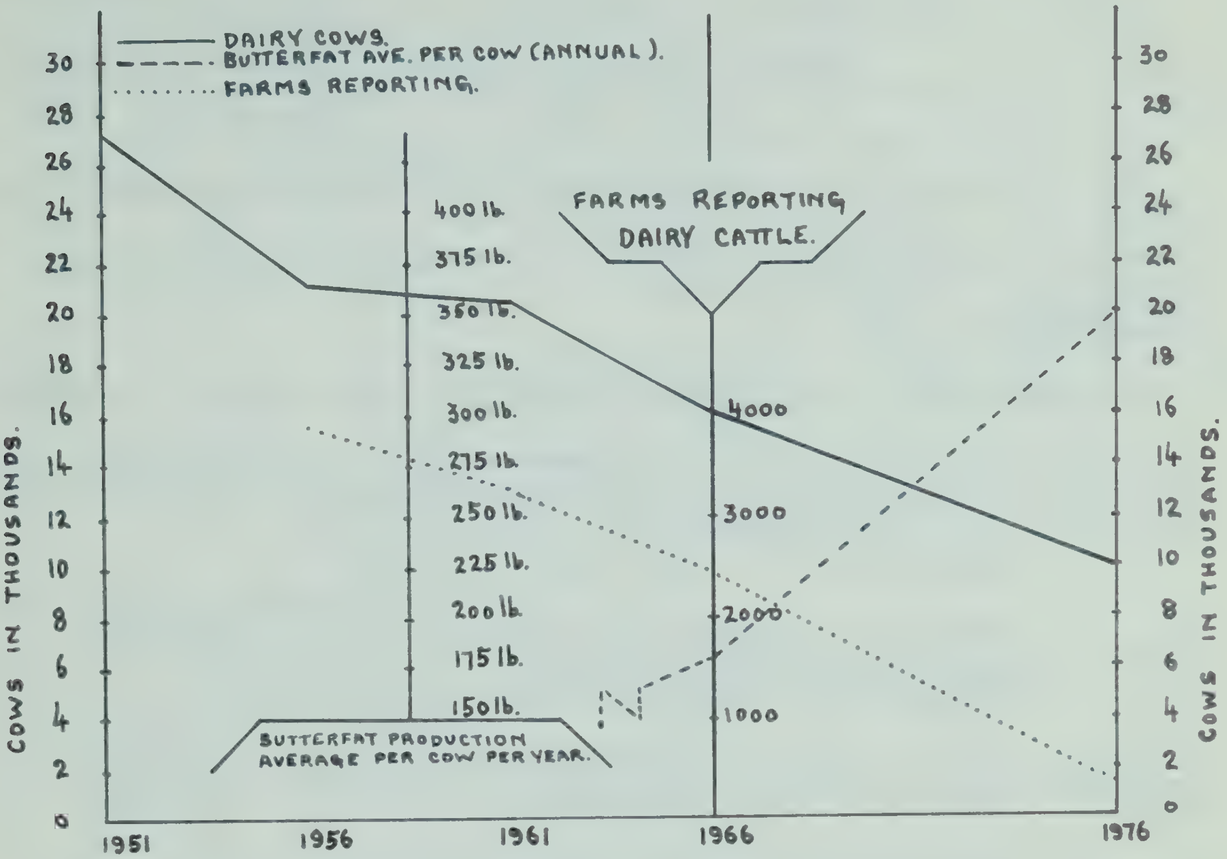
[1] For footnote, see Page 68.

Figure 14

DAIRY COW POPULATION (COWS & HEIFERS - 2 YR. & UP) IN C. D. 12 FOR 1951-66
FARMS REPORTING DAIRY COWS AND 1976 PROJECTIONS [1/]



be reduced as the number of farms declines. Fewer dairy cows with higher production are envisioned. The 16,000 dairy cows are expected to drop to 10,000 in 1976.

1/ For footnote, see Page 68.

	1966 (lbs.)	1976 Possible Production (lbs.)	Increase In lbs.	Increased Income Per Cow
Butter Fat Per Cow	176	300	124 @ 92¢	$114

The $114 increase per cow would result in $1,140,000 more income from 10,000 cows producing 300 lbs. of B. F. when compared with the current level of production per cow.

The added annual cost of producing the increased butterfat follows:

1. Grain for dairy stock 12,500 T @ $50 = Includes grain for calves which are weaned earlier and put on starter, minus estimated reduction of calf sales shown in Item 5.	$625,000
2. Modernizing buildings and equipment.[1] $\frac{10,000}{25 \text{ cows}}$ = 400 herds are possible @ $1,000	$400,000
3. Miscellaneous costs - artificial breeding, veterinary costs, etc. @ $12.	$120,000
4. Dairy Herd Improvement Testing - four technicians, supplies, equipment, travel and office costs @ $8,000	$ 32,000
5. Loss of calf sales - 5,400 @ $40 (90% calf weaning rate - 6,000 fewer dairy cows.)	$216,000

Purchase of higher producing stock is to be accomplished by sale of present stock and repurchase at the ratio of 1:1.6 cows. Savings from fewer heifer replacements will also be used to secure better quality replacement stock.

SUB-TOTAL $1,393,000

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[1] At the present time, there are 124 herds with 18 or more cows. The capital requirements, on farms already well developed, may be somewhat lower than $10,000 budgeted. On the average, the $10,000 budgeted for each farm for a 10-year program, should meet normal expansion and improvement requirements.

Annual savings from modernized dairy industry follows:

1.	Hay for 6,000 cows @ 4T - 24,000 T; $20 per ton It is assumed that hay for maintenance of high and low producing cows is equal.	$ 480,000
2.	Pasture for 6,000 cows @ 3T = 18,000 T: $8 per ton (Same as assumption in item 1 above)	$ 144,000
3.	Grain for 6,000 cows @ 500 lbs. = 1,500 T @ $50	$ 35,000
4.	Removal of 640 bulls (1 per 25 cows)	
	- 1,920 T hay @ $20 =	$ 38,400
	- 1,280 pasture @ $8=	$ 10,240
	- 320 T grain @$50=	$ 16,000
		$ 763,640

Summary

Added income from modernized dairying	$1,140,000
Added costs (modernizing dairy $1,393,000 - savings $763,640)	$ 629,000
ANNUAL GAIN	$ 511,000

Government Assistance Costs

Cost of an intensified dairy extension program	$ 25,000
Cost of one-half of the artificial insemination breeding program @ $3.50 x 10,000	$ 35,000
Cost of the herd improvement testing program	$ 32,000
	$ 92,000

In addition to benefits accured to the dairy farmer, there would be a revitalization of dairy processing plants which would receive a more constant supply of higher quality milk. The farm labour and transportation costs will not increase since the amount of production of the modernized program is almost equal.

Dairying is an intensive labour-use enterprise and fits well on the relatively small farm units in C. D. 12. The government injection of $92,000 accompanied by other suggested changes would increase farm income by $511,000 after major costs of production are paid.

BEEF INDUSTRY IMPROVEMENT PROGRAM

Much of the beef industry in Census Division 12 is an outgrowth of the relatively small cattle herds which were the basis of the livestock industry in the region from the early development stages. In 1966, there were 40 head of cattle in each livestock herd. Assuming that one-half of the livestock in a herd are young replacement stock, each herd in the census division averages 20 brood cows.

Cattle numbers in the region have been expanding. By projecting the 1946-66 trend, a beef cow population of 70,000 can be expected for the census division by 1976.

	Beef Cows On Farms	Calves Produced	Pounds of Beef Produced
1966	45,784	41,200 @ 400 lbs.[1]	16,480,000 (a mix of spring
		26,000 @ 300 lbs.	7,800,000 calves and long-yearlings)
1976 (Possible	70,000	63,000 @ 400 lbs.	25,200,000 spring calves
		50,000 @ 300 lbs.	15,000,000 long-yearlings

The estimated beef production in 1966, assuming 400 pounds weight for spring claves and 700 pounds weight for long yearlings (added 300 pounds to the calves), is 24,280,000. The projected beef production could be 44,1-0,000. At twenty-two cents a pound for calves and nineteen cents a pound for grass-fed yearlings, the income from beef follows:[2]

1/ Assumed weaning percentage: 90%
The projection is reduced by 317 to allow for death losses. Assumed weight of spring calves in the fall to be 400 lbs. and long yearlings off pasture 700 lbs.

2/ The average 1962-66 price for calves sold at Edmonton was 22/cwt.; for all cattle sold it was 19.20. Livestock Market Review, Department of Agriculture, Ottawa, 1966. p. 25.

Figure 15

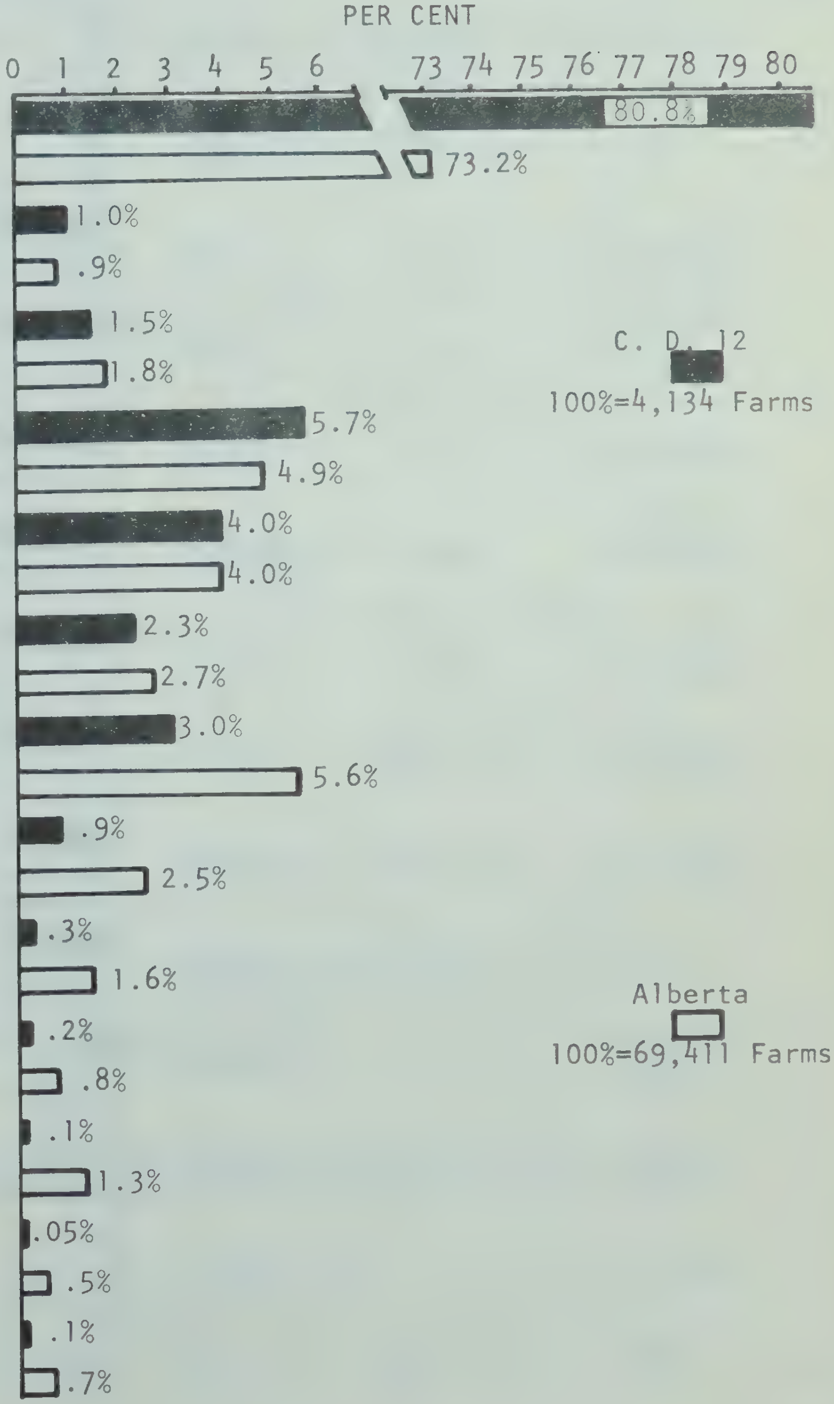
CATTLE ON FEED [1/]

CLASSED HERD SIZES AND THE PERCENTAGE OF FARMS IN EACH CLASS

ALBERTA AND C. D. 12

(1966)

Number Of Cattle	Number Of Farms C. D. 12	Number Of Farms Alberta
0	3,339	50,825
1	43	608
2	62	872
3- 7	237	3,362
9- 12	167	2,807
13- 17	94	1,905
18- 32	124	3,836
33- 47	36	1,725
48- 62	14	1,117
63- 77	10	586
78-122	3	915
123-177	1	367
178+	4	486



1/ For footnote, see Page 68.

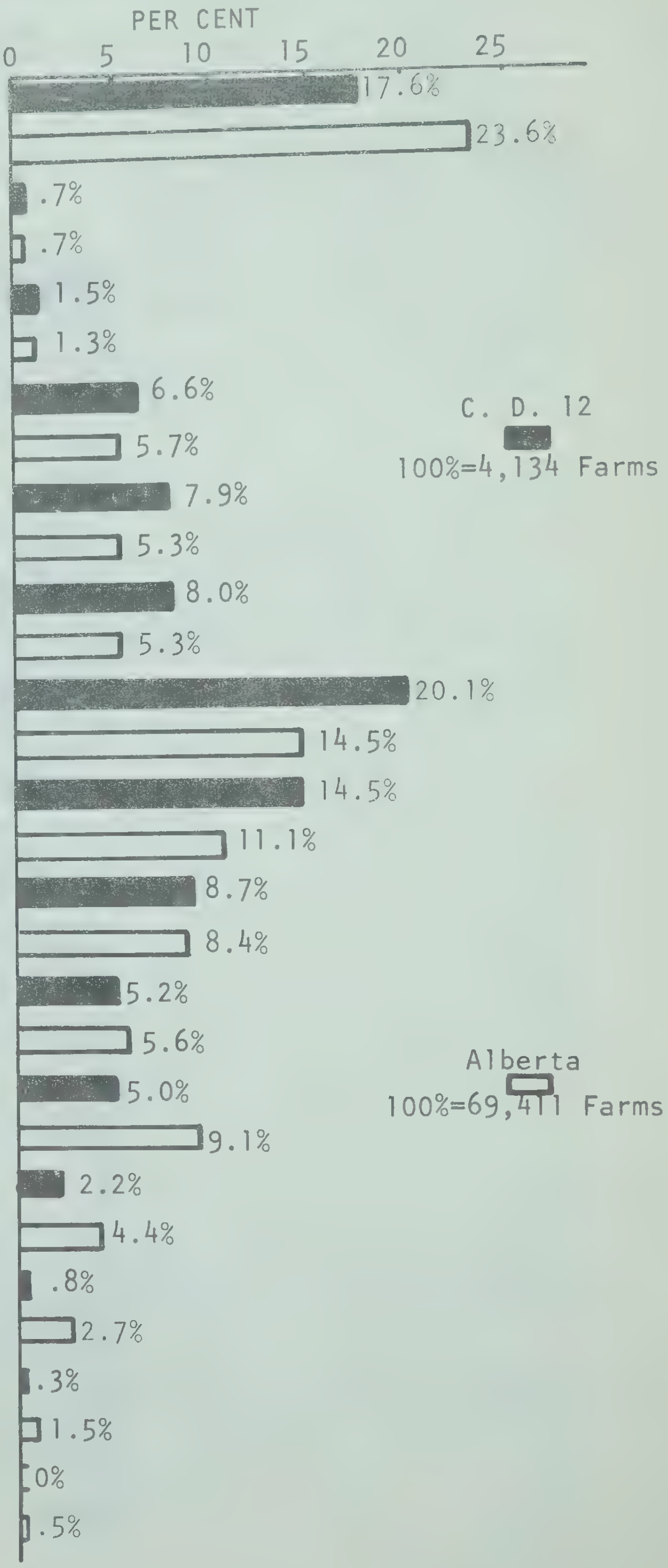
Figure 16

ALL CATTLE [1/]

CLASSED HERD SIZES AND THE PERCENTAGE OF FARMS IN EACH CLASS

ALBERTA AND C. D. 12 (1966)

Number Of Cattle	Number Of Farms C. D. 12	Number Of Farms Alberta
0	729	16,467
1	27	478
2	62	917
3- 7	273	3,981
8- 12	325	3,644
13- 17	331	3,664
18- 32	831	10,105
33- 47	601	7,693
48- 62	358	5,862
63- 77	213	3,916
78-122	247	6,335
123-177	92	3,091
178-272	32	1,881
273-527	13	1,022
528+	0	355



[1/] For footnote, see Page 68.

The possible increase in income from beef production by 1976 is $6.8 million, if eighty per cent of the calves are carried over into the next year as long yearlings the livestock income index is corrected to equal the Alberta average. The income would come from the production of 15,920,000 pounds more beef or an increase of 68 per cent in output. The domestic demand for meats is expected to increase by 50 per cent by 1980.[1] since most of the beef production is carried on in the prairie provinces, an expansion of 68 per cent in Census Division 12 is a possibility.

Annual Cost of Added Beef Production

Hay:	21,800 calves @ 1/2 T = $20	$ 218,000
	20,000 long yearlings @ 1 T = 20,000 @ $20	$ 400,000
	24,215 cows @ 3 T = 72,645 T @ $20	$1,453,000
	3,000 replacement heifers @ 2 T - 6,000 @ $20	$ 120,000
Bedding:	50,000 @ $5	$ 250,000
Pasture:	24,215 cows @ 2 % - 48,430 @ $8	$ 387,000
	20,000 long yearlings @ 1 T = 20,000 T @ $8	$ 160,000
	3,000 replacement heifers @ 1.5 ~~%~~ T - 4,500 T @ $8	$ 36,000
Grain	63,000 calves @ 3,000 T @ $50	$ 150,000
Protein Supplement:	(24,215 cows @ 1#/day for 5 mo. = 2,041 @ $100 (3,000 replacement heifers	$ 204,000
Fencing:[2]	Most farms are fenced. Additional fencing may be needed for pasturing extra cattle	$ 36,000
Buildings and Equipment:	(24,000 additional cows; plus housing for half of present herds which is assumed to be inadequate) $\frac{47,000}{100}$ = 470 herds @ $800 per year	$ 376,000

(Cont'd)

1/ Drummond, W. M. and Mackenzie, W.; Progress and Prospects of Canadian Agriculture, Royal Commission on Canada's Economic Progress, Ottawa, 1957. p. 268.

2/ 600 more miles of fence @ $600 = $360,000. (Since most farms are assumed to be fenced, only extra pasture fencing is budgeted for. 24,000 @ 8 ac. = 192,000 ac. = 300 sections = 1,200 miles. Fence is shared by neighbors requiring one-half this amount or 600 miles.)

(Cont'd)

Interest:[1]	Buildings & Equipment - $376,000 @ 7%	$ 26,000
	Cow herd expansion-24,215 cows @ $300 = $7.3 million for 10 yr. program. $730,000/yr. @ 7%	$ 51,000
Shipping and Marketing:	30,000,000 lbs. @ $.90/100#	$ 270,000
Breeding and Veterinary costs:	24,215 cows @ $11	$ 266,000
		$4,403,000

Balance Statement

- Added income from improvements in the beef industry	$6,480,000
- Added expenses in producing the income	$4,403,000
- Additional income possible	$2,437,000

The above program provides for stable market for hay and pasture at relatively good prices. The program also improves the buildings and breeding stock.

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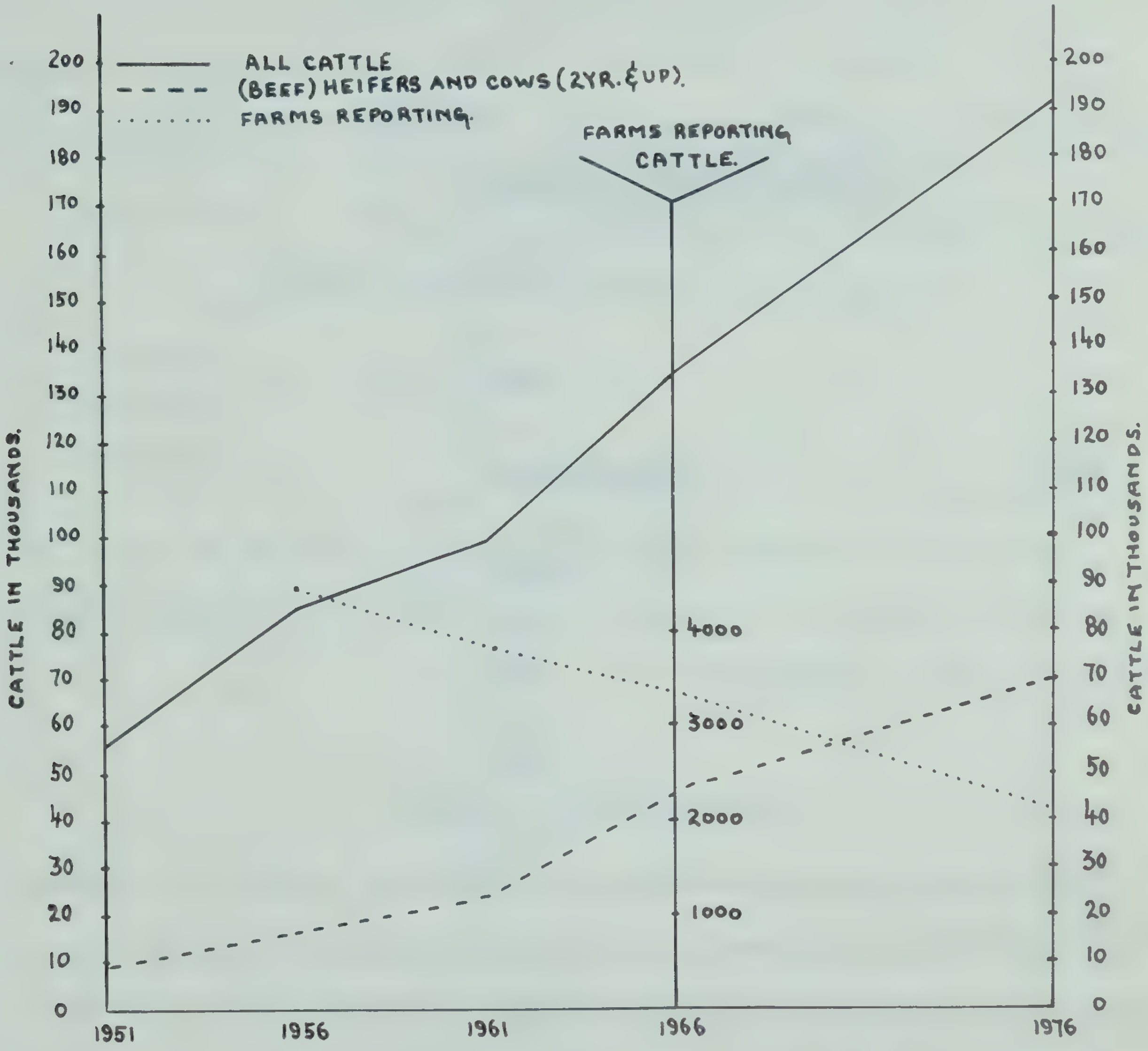
[1] Capital used for cattle on feed and grain is not included since it is used for relatively short terms and both the cattle and the grain are expected to come primarily from home farm produce.

Figure 17

BEEF COWS & HEIFERS (2 YR. AND UP) AND TOTAL CATTLE POPULATION OF C. D. 12 FOR 1951-66 - FARMS REPORTING CATTLE - 1976 PROJECTIONS[1/]



[1/] For footnote, see Page 68.

Government Assitance Needed to Modernize Beef Industry

Intensified Extension Program	$ 25,000
1 Beef specialist - 15,000 Office - secretary - travel - supplies Seminars - workshops - 10,000	
Half of the costs of artificial insemination 70,000 cows @ $4.50	$315,000
Cost of ROP testing program	$ 32,000
4 technicians (eartagging, weighing, keeping records) @ $8,000	
	$372,000

The value of added beef production is projected to be $6.84 million. This would be achieved at a cost of $4.8 million, which includes a governmental injection of $372,000.

SWINE IMPROVEMENT PROGRAM

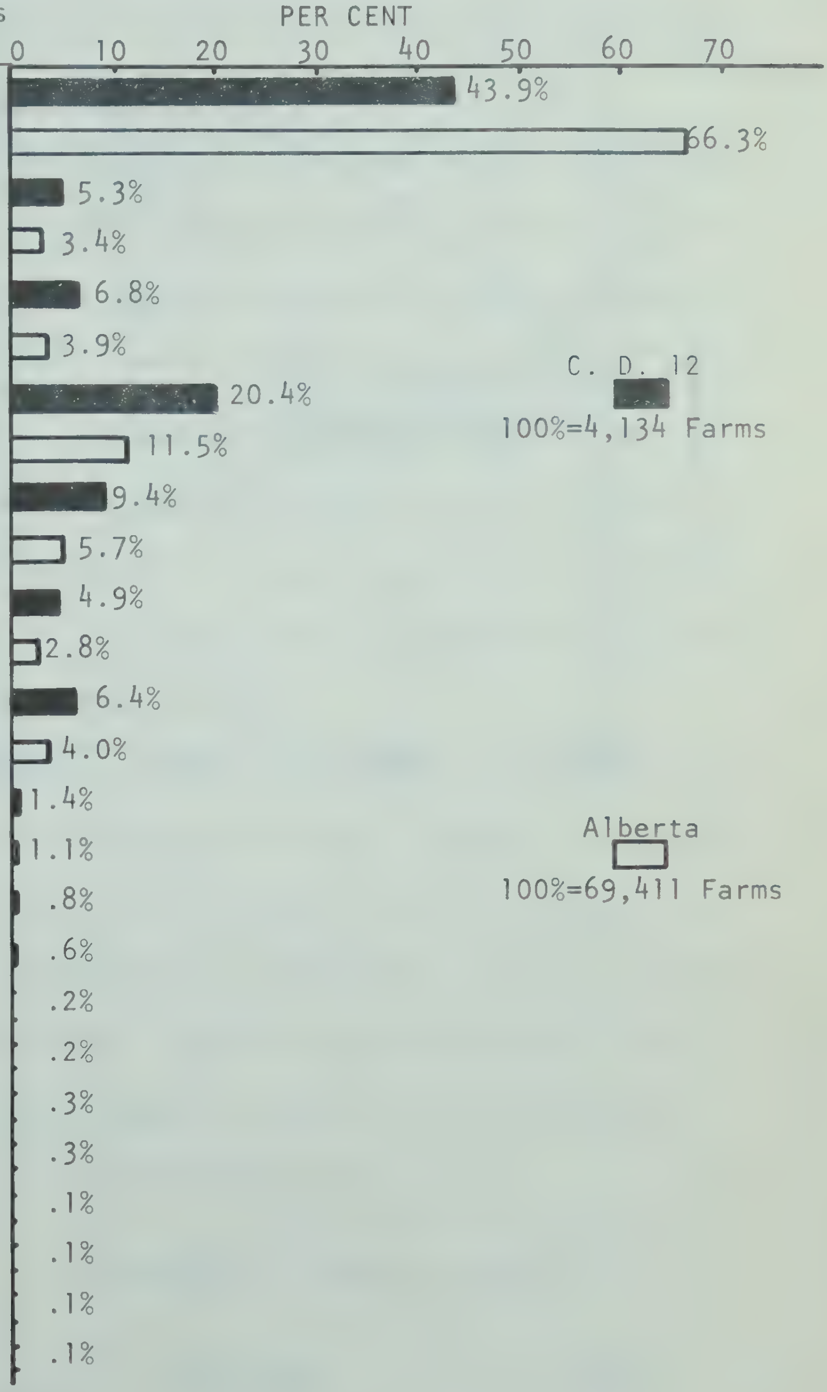
The size of the swine industry has fluctuated largely as a response to prices for hogs received by farmers and the supply of feed grains which occasionally may be short in certain areas of the census division due to drought, hail, frost, or other factors which may limit crop production.

Figure 18 PIGS (OVER 6 MO.)[1/]

CLASSED HERD SIZES AND PERCENTAGE OF FARMS IN EACH CLASS

ALBERTA AND C. D. 12 (1966)

Number Of Pigs	Number Of Farms C. D. 12	Number Of Farms Alberta
0	1,816	46,027
1	214	2,353
2	282	2,745
3- 7	844	7,942
8- 12	390	3,949
13- 17	203	1,962
18- 32	265	2,759
33- 47	59	769
48- 62	33	422
63- 77	7	160
78-122	14	202
123-177	3	56
178+	4	65

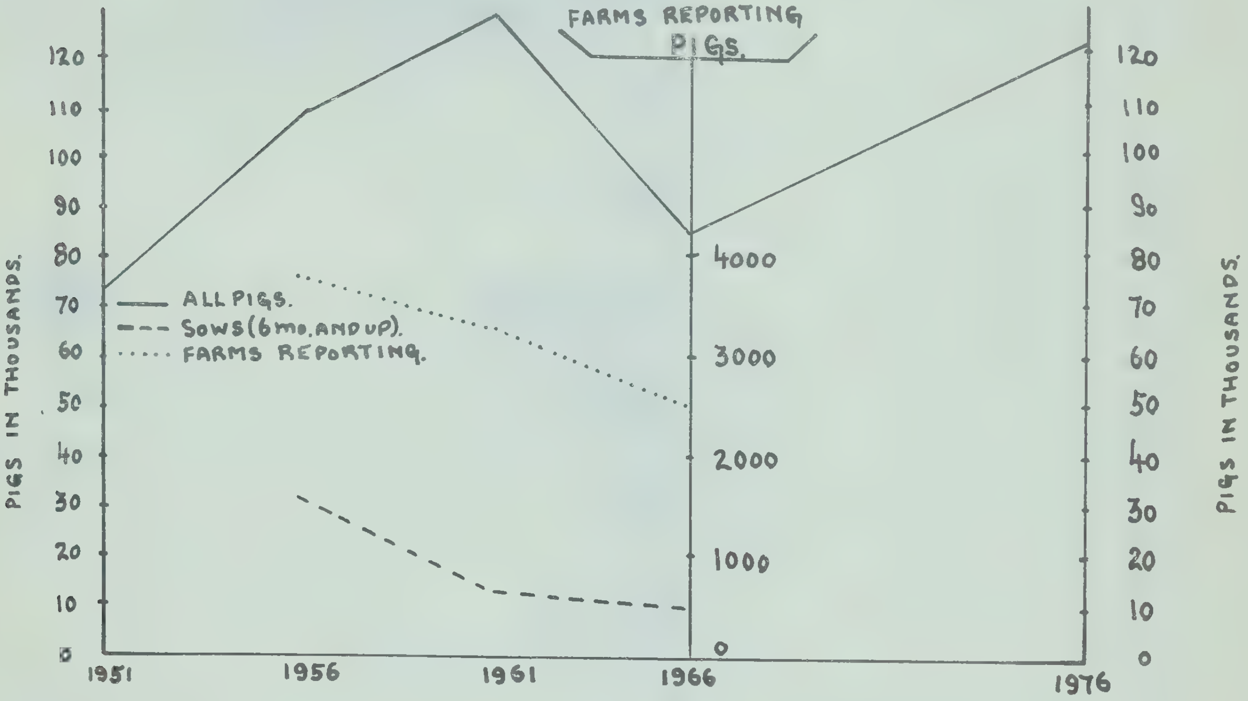


1/ For footnote, see Page 68.

Figure 19

TOTAL PIG POPULATION AND SOWS (6 MO. & UP) IN C. D. 12 [1/]

1951-66 AND FARMS REPORTING PIGS - 1976 PROJECTIONS



1/ For footnote, see Page 68.

As the number of farms declines, the expected number of farms reporting hogs is also expected to decline. From 1956-66, 1,313 farmers dropped out of the swine production. Projecting a slower decline for the period 1966-76, it is expected that approximately 1,500 farms will produce hogs by 1976. Swine production, like other farm enterprises, is expected to become more specialized. The increase in sows per farm could well reach the 1956 level of 8-10.

Assuming that each sow farrows eight pigs per litter twice a year, hog production by 1976 is expected to be 216,000 (8 x 2; 16 x 13,500 = 216,000). Since pigs are raised and sold within the span of one year, the total hogs on farms in the above table for 1956, 1961 and 1966 does not represent the total hog production in the census division and the total production of 216,000 in 1976 cannot be compared with the 84,902 hogs on farms in 1966. One-half of the 216,000 market hogs may be on farms at any time during the year. Hence, 108,000 market hogs plus 13,500 sows or approximately 121,000 hogs would comprise hog numbers on farms in 1976.

Using the assumption stated above, the increase in hog numbers may be based on the possible increase in sow numbers (13,500 - 11,000 = 2,500 x 16 = 40,000). Also an increase of one additional pig per litter or two per sow per year can be achieved through improved swine management. Hence the total additional swine production expected by 1976 would be 60,000 pigs.[1] The increase would come from an increased number of sows, larger litter size, and farrowing sows an average of 2 1/2 times per year.

Cost of Added Swine Production

1. Concentrates

	Tons
60,000 pigs @ 1,000 barley equiv. = $\frac{60,000,000}{2,000}$	30,000

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[1] (11,000 x 2 = 22,000 minus 2,000 death losses in the total hog population. 40,000 + 20,000 = 60,000 pigs.)

(Cont'd)

60,000 pigs @ 112# commercial protein = $\frac{6{,}720{,}000}{2{,}000}$	3,360 T
2,500 sows @ 1,500# barley equiv. = $\frac{3{,}750{,}000}{2{,}000}$	1,875 T
2,500 sows @ 150# commercial protein = $\frac{375{,}000}{2{,}000}$	187 T
50 boars @ 2,000# of feed	50 T
Feed Cost	
35,472 tons @ $50	1,773,600
2. Buildings and Equipment	
60,000 pigs @ $5,000 per 100 hogs = $30,000	30,000
Interest [1] on $30,000 @ 7%	2,100
(Present buildings and equipment are expected to absorb much of the expansion.)	
3. Veterinary	15,000
4. Shipping & Marketing	
60,000 head @ $2	120,000
Total	1,941,000

Returns from Added Production	
60,000 @ 200 lbs. = 12,000,000# @ 70%[2] = 8,400,000# @ 26¢[3]	2,184,000
Added return from pork sales	243,000

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[1] Interest is not charged on feed which is expected to come from home farm production.

[2] Seventy per cent is assumed as dressing percentage.

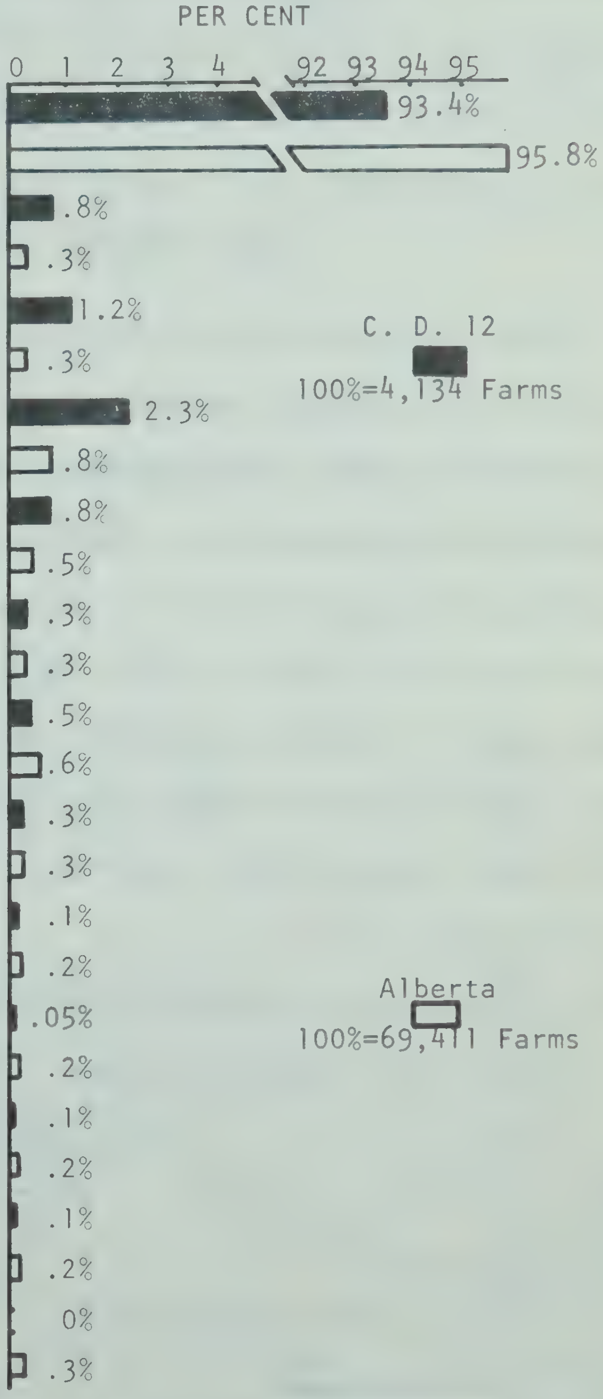
[3] 1962 - 66 average at Edmonton for Grade B dressed hogs was $26.60. To obtain Grade A price add $1. Livestock Market Review, Production and Marketing Branch, Department of Agriculture, Ottawa, 1966. p. 63.

Figure 20 SHEEP (OVER 1 YR.)

CLASSED HERD SIZES AND THE PERCENTAGE OF FARMS IN EACH CLASS

ALBERTA AND C. D. 12 (1966) 1/

Number Of Cattle	Number Of Farms C. D. 12	Number Of Farms Alberta
0	3,859	66,470
1	36	281
2	49	216
3- 7	90	555
8- 12	32	332
13- 17	14	193
18- 32	21	405
33- 47	14	231
48- 62	8	159
63- 77	2	106
78-122	5	167
123-177	4	107
178+	0	189



1/ For footnote, see Page 68.

Government Assistance Needed to Modernize Swine Industry

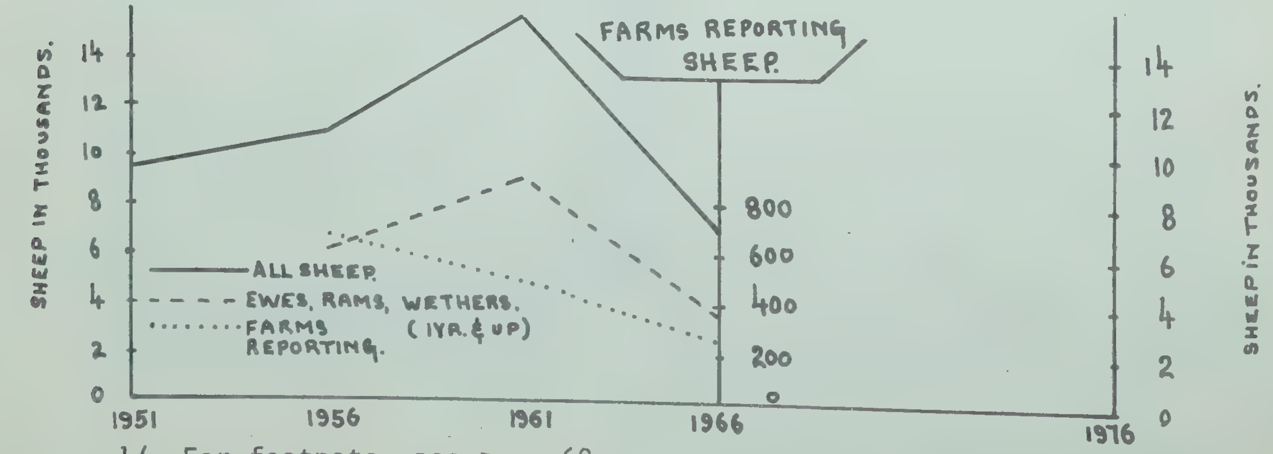
Intensified extension program (2/3 of a livestock specialist's time; plus workshops, institutes, etc.)	17,000

The added income from pork sales would be $2,184,000, produced at a total cost of $1,958,000. The governmental injection needed to stimulate industry modernization is included in the total cost. The modernized industry would yield $243,000 added income to the farmers after paying the costs of production.

SHEEP INDUSTRY IMPROVEMENT PROGRAM

The sheep industry in C. D. 12 is very small. In 1961, sheep numbers in basic flocks reached a peak of approximately 9,000. By 1966, the number had fallen to 3,800. This number is expected to decline further as small farm units cease operations. However, it is anticipated that the rate of decline will level off and that there will be approximately 3,000 ewes on the farms in the region by 1976. This projection is based on the assumption that sheep will continue to effectively utilize marginal pasture areas and that commercial sized flocks under good management will return profits which will cause a stabilization, and later, a possible increase in sheep numbers in the region.

Figure 21 TOTAL SHEEP POPULATION, EWES, RAMS AND WETHERS (1 YR & UP) 1/
IN C.D. 12 - 1951-66 AND FARMS REPORTING SHEEP - 1976 PROJECTIONS



1/ For footnote, see page 68.

In 1966, there were 289 flocks averaging 13 sheep, one year and older, in each flock.

	Sheep One Year and Older	Lambs	Pounds of Lamb[1]	Gross Returns
1966	3,800	3,800[2] assumed 100% @ index[3] of 65	247,000 @ 20¢	59,400
1976	3,000	3,700 assumed 125% lamb crop	370,000 @ 20¢	74,000
		21,000 lbs. of wool @ 50¢ [4]		10,500

An increase of approximately 123,000 pounds of lamb is possible with a decrease of 800 in the basic flock, assuming the lamb crop will rise 25% above present crop. Deworming, docking, casterating, feeding, flushing, housing and general management practices need to be improved to achieve the projected lamb crop and mutton production.

Total Cost of the Improved Sheep Program

Grain	3,000 ewes @ 20 lbs.[5] = 60,000 lbs. @ 2¢ =	1,200
	3,700 lambs @ 160 lbs. = 592,000 lbs. @ 2¢ =	11,480
	150 rams @ 30 lbs. = 4,500 lbs. @ 2¢ =	90
Protein Supplement:		
	3,000 ewes @ 10 lbs. = 30,000 lbs. @ 5¢ =	1,500
	3,700 lambs @ 10 lbs. = 37,000 lbs. @ 5¢ =	1,850
	150 rams @ 10 lbs. = 1,500 lbs. @ 5¢ =	750
Veterinary - deworming, docking, dipping, etc.		
	6,700 sheep @ 75¢ =	5,025
Shipping & Marketing:	$1.25/head x 3,700	4,700
	Total Costs Added	26,000

---

[1] Assumed 100 pound lambs.

[2] Derived by subtracting the 1 yr. and over sheep from the total number.

[3] See section on farm indexes under "Livestock Situation".

[4] Livestock Branch, Alberta Department of Agriculture. (private communication)

[5] Reduced to 20 lbs. from 30 lbs. on the assumption that 1/3 of the ewes are now receiving grain.

It is assumed that the hay and pasture presently used by the 800 ewes which are expected to leave the region will be assigned to the improvement of feeding conditions of the remaining flocks. Improvements in buildings and other operations can occur with self-generating capital so interest charges have been omitted.

Government Assistance Needed to Modernize the Sheep Industry

Intensified extension program	$ 7,000

Balance Statement

Total returns from sheep [1]	$74,000
21,000# of wool @ 50¢	$10,500
Total production costs	$26,000
Income	$58,500

The total value of mutton and wool lambs is $85,500, which is produced at a cost of $33,000 (including governmental injection which excludes building costs in view of reducing sheep numbers). Farms needing new or additional structures are expected to finance these from self-generating capital.

---

[1] V. M. Gleddie, Livestock Branch, Department of Agriculture, Edmonton, approximated the five year average prices (1962-66) at Edmonton at 20¢ per pound for good grade lambs. (private communication)

THE POULTRY INDUSTRY

Poultry in C. D. 12 is a relatively small segment of the agricultural sector. In 1966, there were 145 hens and chickens in the average poultry flock and 381 turkeys in each turkey flock. The hens and chickens are raised primarily for home use.

Poultry Feed Requirements in 1966

Hens and Pullets (79,000):

1. Barley equivalent - annual

   $@\ 60\# \times 79{,}000 = \dfrac{4{,}740{,}000}{2{,}000} =$ 2,370 Tons

2. Commercial concentrate - annual

   $@\ 30\# \times 79{,}000 = \dfrac{2{,}370{,}000}{2{,}000} =$ 1,185 Tons

Chickens (313,000): (Fed to 6 pounds)

1. Barley equivalent - 6 months of feeding

   $@\ 10\# \times 313{,}000 = \dfrac{3{,}130{,}000}{2{,}000}$ 1,565 Tons

2. Commercial concentrate

   $@\ 10\# \times 313{,}000 = \dfrac{3{,}130{,}000}{2{,}000}$

Turkeys (18,000): (Fed to 20 pounds)

1. Barley equivalent - 6 months of feeding

   $@\ 30\# \times 18{,}000 = \dfrac{540{,}000}{2{,}000} =$ 270 Tons

2. Commercial concentrate

   $@\ 60\# \times 18{,}000 = \dfrac{1{,}080{,}000}{2{,}000} =$ 540 Tons

Ducks and Geese - basic flocks (6,000):

1. Barley equivalent - 12 months of feeding

   $@\ 80\# \times 6{,}000 = \dfrac{480{,}000}{2{,}000} =$ 240 Tons

2. Commercial concentrate - starter

   $@\ 20\# \times 6{,}000 = \dfrac{120{,}000}{2{,}000} =$ 60 Tons

Total Barley Equivalent - 4,445 Tons

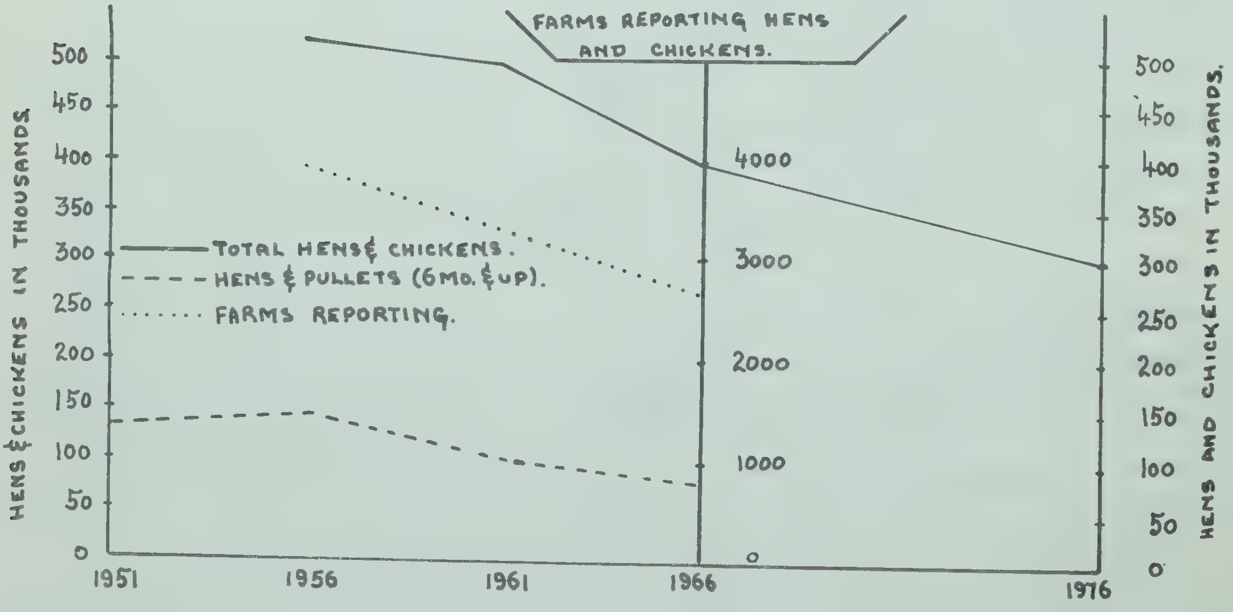
Total Commercial Concentrate Required Annually - 3,350 Tons

As the number of small farm units goes down, the number of poultry in the area is expected to decline. The availability of feed grains and labour make it possible to intensify farm production through the development of commercial poultry flocks for egg production and meat purposes. The introduction of commercial sized poultry enterprises up to 1976 is not expected to off-set the downward poultry trend currently underway in the region, but a levelling off of the downward trend, is expected. Projections indicate that poultry numbers will decline by one-quarter from the current levels by 1976 which will reduce farm decline, and poultry feed requirements in the region by a similar amount.

1976 Barley equivalents required annually for poultry -	3,334 Tons
Commercial concentrate requirements -	2,512 Tons

Figure 22

TOTAL HEN & CHICKEN POPULATION, HENS & PULLETS (6 Mo. & UP) IN C. D. 12
1951-66 AND FARMS REPORTING - 1976 PROJECTIONS [1/]



[1/] For footnote, see Page 68.

Figure 23 TURKEY POPULATION OF C. D. 12 1/

1951-66 AND FARMS REPORTING

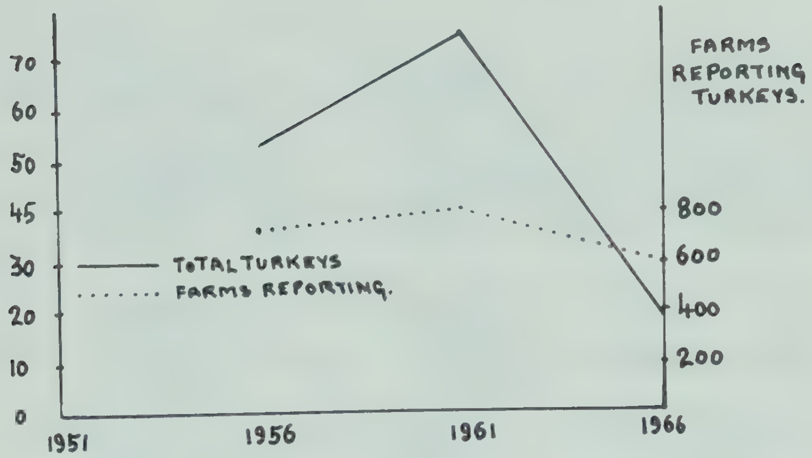
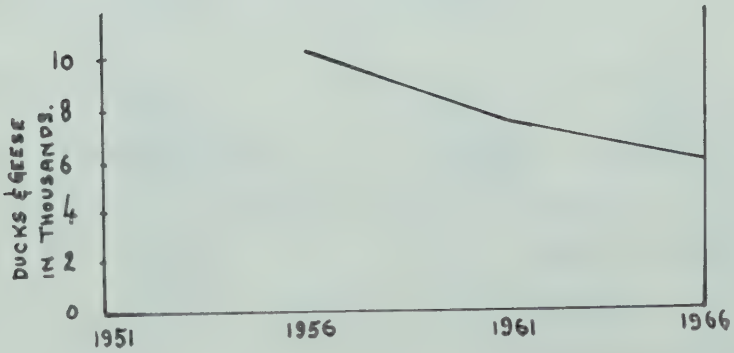


Figure 24 DUCK & GOOSE POPULATION IN C. D. 12

1951-66 2/



1/ For footnote, see Page 68.

2/ Ibid

Table 26 SUMMARY OF POSSIBLE CHANGES IN LIVESTOCK

	1966	Possible For 1976	Possible Added Income - 1976
Dairy:			
Butterfat/cow	176	300	
Cow numbers	16,000	10,000	
Total income 92¢/lb.	2,588,000	2,760,000	
Added income possible[1]			511,000
Labour hrs. 75 hrs./cow	1,200,000	1,000,000*	
Man - years[2]	400	333	
Beef:			
Cows on farms	46,000	70,000	
Pounds of beef produced	24,280,000	40,200,000	
Total income	2,554,000	9,394,000	
Added income possible			2,437,000
Labour 35 hrs./cow	1,600,000	2,450,000	
Man - years	533	816	
Swine:			
Sows on farms	11,000	13,500	
Sows/farm	4.4	9.0	
Pigs/sow per year[3]	14	16	
Pork production (200 lbs - 70% dressing weight)	21,840,000	30,240,000	
Total income 26¢/lb.	5,678,000	7,862,000	
Added income possible			243,000
Labour 5 hrs./hog	780,000	1,080,000	
Man - years	260	360	
Sheep:			
Sheep - 1 yr. and older	3,800	3,000	
Pounds of lamb produced	380,000	370,000	
Total income 20¢/lb.	59,400	74,000	
Added income possible (omitted from total)		3,000	
Labour 3 hrs./ewe	11,400	9,000	
Man - years	4	3	
Added income possible			58,500
			$3,249,500

* @ 100 hrs.

---

[1] Includes feed savings and costs. Also other major costs have been subtracted to arrive at added income. (See sections on livestock.)

[2] 'Man-year' is calculated as 10 hrs. of labour per day for 300 days. A family can provide approximately 4,000 hrs. of labour per year. This varies with the age and number of family members.

[3] Projected litter size.

FUR FARMING

Fur farming in C.D. 12 is a relatively small industry. It consists almost entirely of mink ranching. The good supply of fish and cool climate favour mink production in the area.

Table 27 SIZE AND VALUE OF MINK FARMING OPERATIONS

	1956-57[1]		1961-62[2]		1966-67[3]	1965-66[3]
	C.D. 12	Alberta	C.D. 12	Alberta	C.D. 12	Alberta
Value of products sold*	466,836	2,413,000	381,770	3,267,000	391,188	2,700,000
Farms reporting	89	430	72	284	41	252
Mink on farms	38,913	154,000	47,478	215,000	38,691	268,000
-Pelters*	25,018	104,000	33,235	157,000	23,873	191,000
-Breeders*	13,895	50,000	14,243	63,000	13,873	65,000

---

* The three year average ratio for Alberta of pelts sold to breeders retained is 2.8:1. The figures for C.D. 12 on the number of pelters and breeders is based on the assumption that the ratio was the same for both Alberta and C.D. 12. The value of products sold in C.D. 12 is obtained by multiplying the pelters by the average price for 1966-67 of $14.00; for 1961 by $15; and for 1956 by $15 for standards and $21 for mutations.

In 1966-67, there were 191,000 mink pelts produced in Alberta. The number of mink retained was 65,000. These were primarily for breeding stock.

The ratio of pelters to breeders follows:
1966-67 - 2.9:1
1965-66 - 2.6:1
1964-65 - 3.1:1
1961-62 - N. A.
1956-57 - 3.0:1

---

[1] Canada Department of Trade and Commerce; *Agriculture*, Census of Canada, Vol. 5.3-3, Dominion Bureau of Statistics, 1966. Table 20.

[2] Ibid.

[3] Fur Farming Branch, Alberta Department of Agriculture, Edmonton, (unpublished).

Prospects of Fur Production in C.D. 12

Mink is the only reported fur-bearing animal produced on a commercial farming scale in the region. The availability of mink feeds and a cool climate favour mink farming. Fluctuations in the number of mink produced reflects prices paid for mink which in turn reflects consumer acceptance and demand. Table 27 summarizes prices from 1951 to 1965. Although the prices of mink varied 42 per cent ($14.03 to $20.07), there was even greater variation in prices based on colour and type of mink.

Table 28 CANADIAN MINK PRICES FROM 1951 to 1965[1]

	Average Of All Colour Types	Lowest Average Of Any Colour Type	Highest Average Of Any Colour Type	Difference Between Highest and Lowest Average	Percentage Difference
1951	17.57	15.56	25.63	10.07	65
1951	15.07	12.53	24.82	12.29	98
1953	16.22	13.05	23.40	10.35	79
1954	19.01	15.58	24.72	9.14	59
1955	20.07	15.82	25.38	9.56	60
1956	15.38	11.16	19.53	8.37	75
1957	16.39	13.63	26.75	13.12	96
1958	16.25	11.92	17.97	6.05	51
1959	17.74	13.08	20.57	7.49	57
1960	14.03	12.28	19.93	7.65	62
1961	14.50	12.45	18.04	5.59	45
1962	15.13	12.46	18.08	5.62	45
1963	15.82	12.27	26.47	8.20	67
1964	14.92	13.49	16.88	3.39	25
1965	17.41	14.16	23.82	9.66	68

From 1951 to 1965, the lowest average price ranged from $11.92 to $15.82, and the highest average ranged from $16.88 to $25.63. The greatest price variations, however, are to be found during the same year between colour types. The sharpest difference occured in 1952 with 98 per cent more money for the highest colour type as compared to the lowest. The smallest difference occurred in 1964, with a 25 per cent change from the lowest to the highest averages for particular colour types.

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[1] This data was furnished on request by the Livestock Division, Canada Department of Agriculture and was hitherto unpublished.

Mink ranching, like other agricultural enterprises, has small producers who cannot rely solely on high mink prices to attain a level of income which will yield a satisfactory family income. If a profit margin of five dollars is realized on each mink pelt sold, it would take 600 pelts to obtain a family income of three thousand dollars. From 1964-66, the four year prices averaged \$16.00. The costs of production on most mink farms are estimated to range from \$8 to \$12. It is obvious from these estimates that small mink ranch units will not earn over \$3,000 for family living purposes. It is recommended that loans of sufficient size and time duration be made available to mink ranchers to enable expansion of units into economically viable operations.

In addition, the quality of furs sold also effects the earnings of mink ranchers. The quality can be improved through the use of good sires and through the replacement of low quality female stock. It is recommended that an incentive government payment be made for each good sire and each replacement female brought into a mink ranch for the purposes of improving the quality of mink. This program would have the added benefit of improving the competitive position of mink entering the export trade since the quality of furs would be higher.

Mink feed rations in C.D. 12 consist mainly of fish (Tullibee) and cereal grains. The mix is approximately 70 per cent fish and 30% cereal grains. It takes approximately 100 to 125 pounds of feed for each mink or an average of 115 pounds per head. Mink farmers may purchase fish from commercial fishermen or they may fish nearby lakes for the feed supplies they require.

In 1966-67, Alberta's production of tullibee was 6,000,000 pounds[1/]. In C. D. 12, it was 3,000,000 pounds. At 4¢ per pound, the value of this fish catch amounts to $120,000. Mink farming is the main market for tullibee. The economic impact of mink farming on the region is equivalent to approximately one-half of a million dollars injected at the primary level, (mink and fish production). This injection generates additional economic activity at the secondary or tertiary levels.

[1/] Alberta department of Lands and Forests; Eighteenth Annual Report, Edmonton, 1967. p. 80.

PROGRAMS FOR AGRICULTURAL ADJUSTMENTS AND LAND DEVELOPMENT

Land Development

1976 - improved land acreage	1,380,000 acres
1966 - improved land acreage	1,035,000 acres
- possible improved acreage	345,000 acres

The additional land clearing is essential to attain the livestock and crop production projections and improved income levels of farm families in C.D. 12.

The cost of improving an acre of land is $40.00 (clearing, breaking, rootpicking, burning, rockpicking, etc.).

Capital requirements for improving the land will amount to $13,800,000 (345,000 @ $40). Land improvement is primarily accomplished through custom work. Improvement of 345,000 acres (34,500 ac. per year) would provide work for 250 contractors working 150 days per year.

Soil Improvement

The capacity of agricultural production is determined to a large extent by the amount of arable land as well as the productive quality of the soils. The productive capacity can be altered through drainage, irrigation, fertilization and other practices. Drainage, land reclamation, and irrigation projects provide long-range benefits which are in the public interest. The benefits from fertilizer application are generally realized in a short time interval. In economically distressed regions such as C. D. 12, a relatively rapid imporvement in the economy can be achieved through expanded and intensified fertilizer usage. The implementation of a project would establish the fertilizer practice and help alleviate some of the credit requirements of farmers in the region.

Fertilizer use in C. D. 12 follows:

Area	1962[1/] (tons)	1964[1/] (tons)	1966[1/] (tons)	Possible Use In 1976 (tons)
Bonnyville	706	1,511	1,557	@ 100 lbs. per acre
St. Paul	1,507	1,712	2,761	(The summerfallow acreage is excluded but hay and pasture acreage is included in this estimate)
Smoky Lake	1,030	1,991	2,706	
I. D. 102	---	295	323	
Total	3,243	5,509	7,347	69,000

A fertility program is estimated to cost $5,000,000.

The potential use of fertilizer in the region is 69,000 tons. Some of the acreage is expected to be fertilized more heavily, while other applications will be less intensive than the rates quoted above.

Land Consolidation

Although the projected number of farms in C. D. 12 for 1976 is 3,000, a decline of 1,134 from 1966, the total loss in the number of farms is expected to be smaller if the livestock improvement programs are made operational. The possible livestock improvement and land improvement programs would provide 3,333 man-years of work (full-time farming). It is estimated that there will be an additional 367 part-time farms in the census division. This will result in 3,700 farm operators in 1976 or a decline of 434 farms in the total number. Some new farms will replace those which cease operation.

[1/] Adolph Goettel, Supervisor, Soils Branch, Provincial Department of Agriculture, Edmonton, Alberta. (unpublished data)

The average farm in C. D. 12 in 1966 contained 510 acres with approximately 255 under cultivation. The farms which are expected to cease operations will generally be smaller than average and estimated to be 320 acres in size with 160 improved acres.

The capital requirements for the purchase of 434 farm units (140,000 ac) will be $7,000,000 at a price of $50 per acre.

It is recommended that the land be assembled into blocks of one section or more for new farm operators, or sold to operators who will have farm units consisting of a minimum of one section after the acquisition of the land. The cost of the land will be recovered from the purchaser of the farm unit. The cost of the interest from purchase to sale time and the cost of any deferred payment scheme should be carried by the government.

It is recommended that a family moving allowance and a building moving allowance be provided by the government. The family moving allowance is estimated to cost $1,000 per family and the building moving allowance an additional $600 per family. Approximately one-half on the farmers selling their farms will be fifty years and over.[1] This means that 200 heads of families would need to be trained for other than farming occupations and moved to alternate jobs.

Cost of allowances:

Moving allowance	$600
Resettlement grant	$1,000
200 families @ $1,600	$320,000
Total 10 year cost of the land consolidation program	$7,320,000.

---

[1] Two hundred and fifty seven operators in C. D. 12 were surveyed by the Rural Development Research Branch in 1966. The survey indicated that 50% of the farmers wishing to sell their farms were 50 years of age or older.

Table 29 ADDITIONAL CROP RETURNS FROM INCREASED ACREAGE

		Bu.	Prices	"Added Returns"
Wheat	6,000 ac x 20 bu =	120,000........@	$ 1.50	$ 180,000
Oats	71,000 ac x 36 bu =	2,556,000........@	$ .50	$1,278,000
Barley[1]	149,000 ac x 23 bu =	3,427,000........@	$ .85	$2,913,000
Flax	2,000 ac x 12 bu =	24,000........@	$ 2.75	$ 66,000
Rapeseed	13,000 ac x 18 bu =	234,000........@	$ 2.20	$ 515,000
Hay	71,000 x 1.5 =	106,000 tons...@	$20.00	$2,120,000
Pasture	136,000 x .5 =	68,000 tons...@	$ 8.00	$ 544,000
Addition crops income possible................................				$7,616,000

241,000 additional acres are expected to be used for cash crop sales. The cost or producing one acre of grain is $20.00.[2] Hay production costs are estimated at $10 per ton. The cost of the additional crop production would total $5,530,000 leaving an estimated gain in income of $2,086,000 to the farm operators. The total addition of 345,000 improved acres by 1976 would increase the current 250 acres of crop land per farm to 343 acres and the size of farm will be 620 acres compared to 510 acres in 1966.

1/ Although added livestock feed requirements are provided for under the barley acreage, it is likely that farmers will use considerable amounts of oats in rations to substitute for the barley. The increase in barley acreage is shown as income in Table 29 above. It is charged as an expense in the livestock budgets.

2/ Bauer, L.; 1966 Alberta Farm Business Report, Alberta Department of Agriculture, Edmonton, Alberta, 1966. p. 46. Costs include gas, oil, seed, repairs, land taxes, depreciation, insurance, operators wage ($1.20/hr. or $3/ ac.), interest on capital, rent to landlords and other variable and fixed costs.

3/ Prices used are based on quotations in Statistics of Agriculture for Alberta; Bulletin 853-2.

Table 30 ADDITIONAL CROP PRODUCTION FROM FERTILIZER USE

Wheat - 185,000 ac. x 5 bu. = 925,000 bu. @ $1.50

Barley - 250,000 ac. x 7 bu. = 1,750,000 bu. @ $ .85

Oats - 200,000 ac. x 10 bu. = 2,000,000 bu. @ $ .50

Rapeseed - 60,000 ac. x 3 bu. = 180,000 bu. @ $2.20

	Estimated For 1976	Possible By 1976
Wheat	$2,775,000 @ 7 bu.	$3,330,000
Barley	$1,487,000 @ 10 bu.	$2,125,000
Oats	$1,000,000 @ 13 bu.	$1,300,000
Rapeseed	$ 396,000 @ 4 bu.	$ 528,000
Total	$5,658,000	$7,283,000

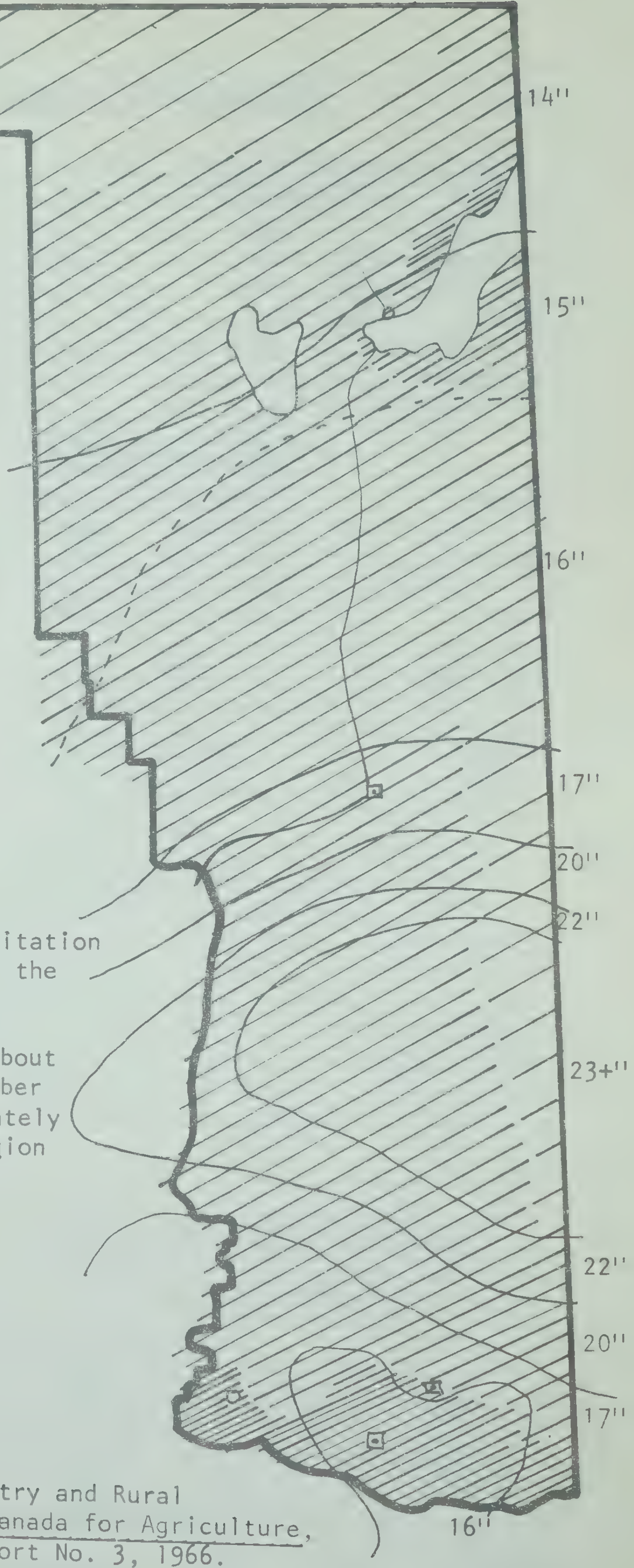
The estimated fertilizer costs to achieve the income estimated for 1976 is based on 70 lbs/ac. @ 5¢ = $3.50 per acre for grain. The 70 pound fertilizer rates are not the optimum application. They are an estimate of probable use by 1976. Higher rates of fertilization of 100 pounds per acre would yield the extra benefits shown in the column "Possible by 1976".

Crop value.	$5,658,000
Fertilizer cost (695,000 @ $3.50.	$2,432,000
Possible added return.	$3,226,000

In addition, farmers are expected to increase fertilizer useage on hay and pasture with added benefits. Estimates of benefits from added forage production resulting from the use of fertilizer are not possible due to the lack of sufficient data.

CLIMATE IN C. D. 12

Figure 25



Frost-Free Days:

C. D. 12's mean frost-free periods are grouped into three categories. These are:

▨ 40- 60 Frost-Free Days

▨ 60- 80 Frost-Free Days

▨ 80-100 Frost-Free Days

Precipitation

The amount of average annual precipitation is marked in inches on the sides of the Census Division boundaries.

The growing season usually starts about April 30; the average May to September precipitation varies from approximately 13'' in the southern part of the region to 9'' in the northwestern corner.[1]

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[1] Canada Department of Forestry and Rural Development, The Climates of Canada for Agriculture, The Canada Land Inventory, Report No. 3, 1966. Figures 7 & 16.

Responses to fertilizer vary considerably with changes in soil type, weather conditions, (see "Climate in C. D. 12,p. 111), level of farm management, the kind of crop and other production practices. Because of the 'complex combination' of factors, it is difficult to assign specific yield increases which will result from the use of fertilizer. Increases of as much as 47 bushels per acre of barley, (from 45 to 92 bushels per acre), with 100 pound application of fertilizer have been reported in C. D. 12.[1/] With unfavourable combination of production factors, a negative return on fertilizer investments can be a reality. Data on optimum fertilizer use for maximum economic gains over time is deficient. Estimates based on experimental data, demonstration plots, and observations would indicate that the following yield increases can be achieved in C. D. 12 on a sustained basis in the period 1966-76:

Wheat - 5 bu.
Barley - 7 bu.
Oats - 10 bu.

The increase on many farms, especially with good management, will be much higher than these estimates. However, on the regional basis, because of the many variables involved, the total crop productivity increases are expected to be relatively low. The actual yield increases will depend on the rate and extent of adoption of the fertilization practice, the rate of fertilizer use as well as other cultural practices.

[1/] 1967 fertilizer deomonstration results, Provincial Department of Agriculture, Edmonton, Alberta. (unpublished data)

Crop Production Changes

To achieve the changes in crop production and farm expansion, it will be necessary to conduct an intensified educational program in the field of agronomy and farm management. The education programs should deal with basic structural changes in farm organization as well as improved management practices.

It is recommended that the following personnel be hired to deal with the problems outlined above:

Agronomy specialists @ $25,000 per year	$250,000
Farm Management specialists @ $30,000 per year	$300,000
Land Development advisors @ $25,000 per year	$250,000

Table 31 ESTIMATES OF EMPLOYMENT IN FARMING ENTERPRISES[1/]

	1966	Possible in 1976
Man Years for crop production	1,386	1,802
dairying	400	333
beef	533	816
sheep	4	3
swine	260	315
poultry	85	64
	2,664	3,333

[1/] Special calculations, Rural Development Research Branch. A 'man-year' is defined as 10 hours of labour for 300 days. A family can provide about 4,000 hours of labour a year. (Also, see discussion on p. 107.)

Table 32

ADDITIONAL GRAIN REQUIREMENTS FOR POSSIBLE LIVESTOCK PRODUCTION BY 1976 (IN BARLEY EQUIVALENTS)

Dairy (net increase*)	10,600 tons	
Beef	3,000 tons	
Swine	34,000 tons	
Sheep	400 tons	
	48,000 tons	(87,000 ac.)

* Added use minus saved feed from reduced cow numbers.

The additional livestock feed requirements for 1976 will amount to 48,000 tons, if the livestock improvement programs are implemented. Assuming an average yield of 23 bushels of barley per acre means that an additional 87,000 acres of barley or equivalent amount of feed will be needed to meet the feed requirements.

Table 33 SUMMARY OF POSSIBLE CHANGES IN CROP PRODUCTION

Crop	Crop Acres	Hours Per Acre	Total Hours	Possible	Hours Per Acre	Total Hours	Added Production Possible (bu.)[1]
Wheat	179,000	4	716,000	185,000	4	740,000	120,000
Oats	129,000	4	516,000	200,000	4	800,000	2,556,000
Barley & Mixed Grains	154,000	4	616,000	250,000[2]	4	1,000,000	2,208,000
Flax & Rapeseed	54,000	5	270,000	70,000	5	350,000	84,000(F) 234,000(R)
Rye	1,000	4	4,000	1,000	4	4,000	
Tame Hay[3]	198,000	8	1,587,000	269,000[4]	8	2,136,000	
Pasture	91,000			227,000[5]			
Summerfallow	198,000	1.5	297,000	150,000	1.5	225,000	
Other Crops	31,000	5	155,000	30,000	5	150,000	
Total Improved Acres	1,035,000		4,158,000	1,380,000[6]		5,405,000	

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[1] Additional acres possible are multiplied by average yield.

[2] Possible barley production is increased to the 1956 acreage level; expansion in oats and barley acreage will provide feed for the the greater livestock numbers and maintenance of current sales levels.

[3] Includes green feed (oats cut for fodder).

[4] Based on hay required for possible livestock development.

[5] Assumed pasture yield at 1/2 T per acre. The figure is based on possible livestock development.

[6] Possible improved acreage to meet the livestock feed needs, and expansion in feed grain production.

CAPITAL

Capital may be applied in a variety of ways to affect the level of production and the profitability of a farm enterprise. For example, the application of new technology and new farm practices is often limited by the availability or the lack of capital.

Farm Credit in C. D. 12

In a 1966 survey of farm operators in C. D. 12, conducted by the Rural Development Research Branch of the Provincial Economics Division, 31% of the farmers did not report any debt.[1/] Sixty-nine per cent of the farm operators were using credit in their farm operations. The average size of the loan which farmers had at the time of the survey was $6,307.

Table 34, below indicates that only 2.8 per cent of the loans made were for the improvement of or additons to livestock enterprise.

Table 34 INDEBTEDNESS OF 169 FARM OPERATORS IN C. D. 12

	Total Amount Loaned	No. Of Loans	Average Loan
Land	$ 595,057	98	6,702
Buildings	$ 103,570	29	3,571
Machinery	$ 260,281	105	2,479
Livestock	$ 29,850	14	2,132
Operating Expenses	$ 45,562	65	701
Personal and H.H.	$ 14,215	37	384
Other	$ 17,453	21	831
Total	$1,065,988	369	

[1/] 247 farm operators were surveyed, Rural Development Research Branch. 1966.

Farmers who reported having loans averaged 2.2 loans each, indicating that farm loans were not too well consolidated.

Forty-five per cent of the farm operators interviewed stated that in their opinion, a person should avoid borrowing money. This figure reflects a considerable amount of self-rationing of money in agriculture. The self-rationing may be due to the uncertainty of a farmer to repay the loan (risks involved), pride in cash operation, or to the stigma attached to borrowing money.

Fifteen per cent of the farm operators who requested loans were refused credit and 85 per cent were granted the loans they requested, indicating a good success ratio for obtaining credit.

The average net worth of farm units in the survey was $27,828. For farm operators who had loans, the ratio of net worth to indebtedness was 4.4:1.

Capital Requirements

The economic growth and development of agriculture in C. D. 12 is largely dependent on the availability of capital, human resources and land resource development. Much of the capital required will be self-generating. Farm operators are expected to improve buildings, livestock, land and farming practices in general, as they earn capital from the sale of farm produce. Governmental assistance will, however, be necessary to provide an environment conducive to the economic growth and development, for educational programs, for farm loans, and for assistance in those areas not adequately served by the private sector of the economy.

An estimate of capital requirements necessary for major expenditures involved in the economic growth and development of agriculture follows:

Table 35 CAPITAL NEEDS

	10 Yr. Requirement 1966 - 1976
Land -	
Development of 345,000 acres of land............	$ 13,800,000
Land consolidation - 434 farms	$ 7,000,000
Improving land fertility project................	$ 5,000,000
Rural Home Development	$ 11,500,000
Farm Buildings -	
Dairy buildings, equipment & water	$ 4,000,000
Beef buildings, equipment & water	$ 5,600,000
Swine buildings, equipment & water	$ 1,700,000
Livestock expansion of basic beef herds	$ 7,200,000
Machinery @ $25.00[1] per cultivated acre x 340,000 acres to be improved	$ 8,500,000
Human Resource Programs	
Extension education in agriculture and land adj..	$ 1,440,000
Supplementary adjustment payment for low income farm operators	$ 600,000
Family living education & counselling...........	$ 2,760,000
Public Affairs	$ 100,000
Home improvement extension program	$ 100,000
Total	$ 69,300,000

To avoid duplication, the costs of retraining and relocation of farm families as well as the costs of family living services are shown in the section on costs of the B-12 Program.

As far as expansion of livestock is concerned, the increase in hog numbers is expected to occur largely through natural increase and from self-generating capital. The expansion in numbers of young beef stock is expected to occur in a similar manner. Dairy cow improvements should come through the sale of present low producing stock and re-purchase of fewer but higher producing stock.

1/ Alberta Department of Agriculture; Alberta Farm Business Report, 1966. p. 37. The report indicates that farmers in east central Alberta have $24.34 investment in machinery per acre.

HUMAN RESOURCE DEVELOPMENT

The economic development of agricultural sector in C. D. 12 is contingent upon the projected improvements which could be accomplished in the livestock and crop enterprises. It is recommended that education plays a major role in this development. It is essential that farm practices be based on the latest and most efficeint scientific and technological developments. As intensified extension program, directed primarily at the farm operators who exhibit interest and ability in developing and operating economically viable farm units, is recommended for the region. The program will make it possible for the farm operators to compete more effectively in an open market and to realize greater economic benefits.

1. Extension Education

This program will primarily be directed at farm operators who are moving into economically viable farm units but who are not yet in this position. The agricultural enterprise improvement programs outline the cost of extension education. The cost for ten years follows:

Dairy Extension Education	250,000
Beef Extension Education	250,000
Sheep Extension Education	70,000
Swine Extension Education	170,000
Crops and Soils Extension Education	250,000
Farm Management Extension Education	300,000
Ten Year Total	1,290,000

2. Retraining and Relocation

A survey on 247 farm operators in C. D. 12 conducted in 1966 by the Rural Development Research Branch indicated the following:

No. of farm operators who wanted to sell their farm	64
-of the above number, those who were 50 years or older numbered	41
The number of operators who were interested in non-farm employment	97
-of this number, those who were 50 or older numbered	38
Farm operators who want to sell their farms	26%
-percentage of above group who are 50 years or older	64%
-percentage of 50 years old or older potential sellers as portion of those surveyed	17%
Farm operators who are interested in non-farm employment	39%
-percentage of above group who are 50 years and older	39%
-percentage of 50 years old in above group as portion of those surveyed	15%

Of the 430 farm operators who are expected to close operations in C. D. 12 by 1976, approximately one-half or 215 will be 20-50 years of age. The non-farm jobs, however, are becoming more specialized, hence, practically all of the farm operators will require retraining. Major shifts are expected in the labour force within C. D. 12, which means that people who leave farming or move into other labour markets will need to relocate in areas where employment opportunities exist. It is recommended that all 200 farm families be granted financial aid for retraining and relocation. The cost of relocating 200 families was budgeted under "Land Consolidation". The training and education of these families is considered with the total adult education requirements for C. D. 12. A brief statement on the total education requirements follows:

One-half of the residents of C. D. 12 who are not attending school have less than high school education. Since some of these residents are over fifty years of age, it is estimated that about one-third of the 6,507 new job seekers will require basic education in order to enter into vocational training. These people will require counselling and aptitude testing prior to replacement into vocational training. They will also need assistance with the purchase of books and school materials, payment of tuition as well as living allowances. The cost of these programs are shown under "Cost of B-12 Program" of this report.

3. Family Living Services

Self-improvement of low income families requires counselling of the family members about employment opportunities, education, family relations and child rearing. Also necessary, is training in the area of nutrition and sewing, home materials, buymanship, and other similar topics. This counselling and training should be provided by professionals where possible and by 'home aids' who come from the ranks of low income families where these can be more effective in improving home conditions. The 'home aids' should be trained by professional family counsellors.

Four home economists @ $10,000	$40,000
Four professional family counsellors @ $15,000	$60,000
Ten assistants per professional person @ $4,000	$160,000
- expenses @ $400	$16,000
	$276,000
A ten-year counselling program	$2,760,000

4. Public Affairs

Group, institutional, and governmental activity are playing an increasingly important role in agricultural development. If decisions in the public sector are to be based on sound information and if successful coordination of activity is to be accomplished, it is necessary to conduct a continual education program in public affairs. Such a program would provide information on economic and social topics for leaders and the general public.

The need for this type of information has become more acute in recent years because of the great dimension and rapidity of changes in agriculture. Mechanization, science, and new technology have made it possible for a farm operator to manage more land and to produce more agricultural product per worker. The process is analogous to the agricultural revolution caused by the introduction of the plow which replaced the hoe and which displaced farm workers who could then engage in other socially useful tasks, thereby improving the standard of living. This same process is now underway in the modernization of agriculture. The modernization of agriculture, however, is causing dislocations within the industry which in turn affect rural communities. Both the changes and dislocations are of concern to society in general.

The changes and imbalances have two points of origin; internal and external. While application of mechanization, science, and technology has 'pushed' some farm workers away from agriculture; better paying jobs in non-agricultural sectors have 'pulled' them away. The 'push and pull' factors have combined to produce rapid outmigration from rural communities including C. D.12. Other forces which have contributed to rural community changes include new developments in transportation and communications, changes in organization and methods processing and marketing, national and international trade and other factors.

The forces which have induced changes in rural communities up to this point are expected to continue to produce changes in the future. Public officials and community leaders who make decisions about monetary expenditures on public services need to study the causes, rate and extent of various economic and social changes and then reflect the trends in their plans for providing and operating public services. Elected and appointed officials and community leaders need to be provided with information in

and social areas outlined above.

Extension courses are recommended to train officials and leaders for more efficient organization, operation, and management of public services in rural communities. Individuals in communities will be trained in evaluating resources, identifying problems and goals, and planning and implementing programs. The insights of individuals, committed to area development, is essential to the unlocking of potentialities in the area.

The cost of such a program would be:

Seminars, Institutes, Conferences, Workshops, etc. @ $10,000 per year for 10 years............................	$100,000

5. Supplementary Adjustment Payments For Low Income Farm Operators

In 1961, there were 1,124 farm operators in C. D.12 who were 55 years of age or older, comprising 25 per cent of the total. During 1966, there were 2,155 farmers (excluding residential farmers) who grossed less than $3,750 from their farm sales. This group received approximately $1,500 for family living. Assuming that 25 per cent of this group who grossed $3,750 or less (2,155) was composed of farmers over 55 years of age, it is estimated that 539 farm operators, 55 years and older, grossed less than a $1,500 family income. In addition, there would be senior farmers whose farm gross sales were over $3,750, but who for various reasons would have earned low family incomes. It is estimated that there would be a total of 700 senior farm operators in this income group in C. D. 12.

Since people over fifty years of age generally have difficulty in retraining for other jobs and in relocation to new job areas, it is recommended that an early retirement program be initiated for senior low income (non-viable) farm operators. This program would permit retirement in the family farm home or in the community and would help conserve the meager resources of low income families for possible future emergencies.

It is recommended that a monthly annuity of $100 per month be paid to each couple and $75 be paid to each individual retiring early, at ages 55-65. After the age of 65 other pension plans should be provided. It is expected that such an early retirement program would assist farm operators in making the transition out of farming and that it would also provide an opportunity for farmers wishing to expand their operations to achieve a viable farm unit sooner through purchase or rental of farms which are placed on the market by the early retiring farmers.

The capital requirements of such a program are estimated as follows:

$1,200 x 100 farms = $120,000 annually.

$120,000 x 5 years (5 years is average annuity over the next 10 years)
$600,000.

PROSPECTS FOR THE FUTURE*

The prospects for agricultural growth and development in C. D. 12 appear bright. The possibilities for development are outlined in preceding sections of this report. A summary of the possible improvements follows:

Dairy	1961	1966	1976
Production per cow (# of B. F.)	176		300
Number of cows	20,478	16,076	10,000
Added income because of modernization (estimated)			$1,140,000
Added costs to modernize (estimated)			$ 629,000
Estimated annual gain in income			$ 511,000
Beef			
Pounds of beef		24,280,000	44,100,000
Number of cows		46,000	70,000
Added income because of modernization (estimated)			$6,840,000
Added costs to modernize (estimated)			$4,403,000
Estimated annual gain in income			$2,437,000
Swine			
Sow numbers		11,000	13,500
Added income because of modernization (estimated)			$2,184,000
Added costs to modernize (estimated)			$1,941,000
Estimated annual gain in income			$ 243,000
Sheep			
Sheep numbers (1 yr. and over)		3,800	3,000
Estimated total income in the industry			$84,500
Added costs to modernize (estimated)			$26,000
Estimated annual gain in income			$58,500

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* Mink ranching and that industry's prospects are handled separately in a previous section of this report.

Crops

Added crop acreage	345,000
Added income possible (expanded acres and fertilizer use)	10,610,000
Added costs	7,252,000
Estimated gain in income	3,368,000

VALUE OF AGRICULTURAL PRODUCTION

1. Estimated value of farm products sold in 1966 (Av. $3,950 x 4,134 farms)		16,290,000
2. Possible added value of farm products by 1976		23,496,000
Dairy	$ 1,140,000	
Beef	$ 6,840,000	
Swine	$ 2,184,000	
Sheep	$ 58,000	
Crops	$13,274,000	
	$23,496,000	
3. Estimated total agricultural product by 1976		39,786,000
4. Estimated improvement in farm family income by 1976		8,561,000
- Added value		23,496,000
- Added cost		14,935,000
Dairy	629,000	
Beef	4,403,000	
Swine	1,941,000	
Sheep (handled as a unit - value minus costs entered in item 2 above)		
Crops	7,962,000	
- Difference		8,561,000

Since there will be an estimated 3,700 farms in C. D. 12 by 1976, the average income per farm is estimated to rise by $6,350 $(\frac{23,496,000}{3,700})$ from the 1966 level of $3,950 for a total gross income per farm of $10,300.

If the margin retained by the farm family remains at 40 per cent (current level), then family incomes in 1976 would be $4,000 compared to the 1966 level of $1,600 (3,950 x 40%). However, it is doubtful that small farmers retain a 40 per cent margin since small farms generally have high costs per unit of production, so the comparative position indicated above would be even better for 1976 if the suggested changes are made in the agricultural sector. Modernization of the industry, application of new technology, increased size, improved management, additonal capital, and a fair cost-price relationship are all essential for improving the relative economic position discussed in this report.

The changes suggested need to be implemented without undue delay if the economic improvements sought are to be realized.

In addition to the primary benefits which would accrue to the farm families from improvements in farm development and adjustment, there would also be some secondary benefits which would be especially important to small scale farmers who rely on part-time off-farm employment to supplement their farm income. Expanded crop and livestock production will result in secondary and tertiary activities which will mean jobs for underemployed farmers and farmers leaving agriculture.

For example, bringing 345,000 acres [1/] of new crop land into production by 1976 expands the 1966 crop land (1,035,000 ac.) by one-third. The new crop land acreage can be compared to about 700,000 acres of land in farms. [2/] This amount of farm land (30 miles square) is comparable to the market area of St. Paul, Alberta [3/], as identified by the Provincial Economics Division.

[1/] See Table 33, Summary of Possible Changes in Crop Production.

[2/] Currently, 50% of the land in farms is improved land. Woodland and unimproved acreage contributes little to total farm income. Assuming that 25 acres of such land are needed to provide pasture for one calf, the 1,073,000 unimproved farm acres could support 43,000 beef cows @ $10/yr. the returns would be $430,000/yr.

[3/] 1966 Canada Population Census shows St. Paul population at 3,454. The labour participation rate of 3.01 indicates that there are 1,181 jobs.

Although one cannot say that another service center like St. Paul would result from the proposed changes in agriculture, it is obvious that significant benefits would be generated from secondary and tertiary activities resulting from agricultural development and adjustment.

NON AGRICULTURAL INDUSTRIES;

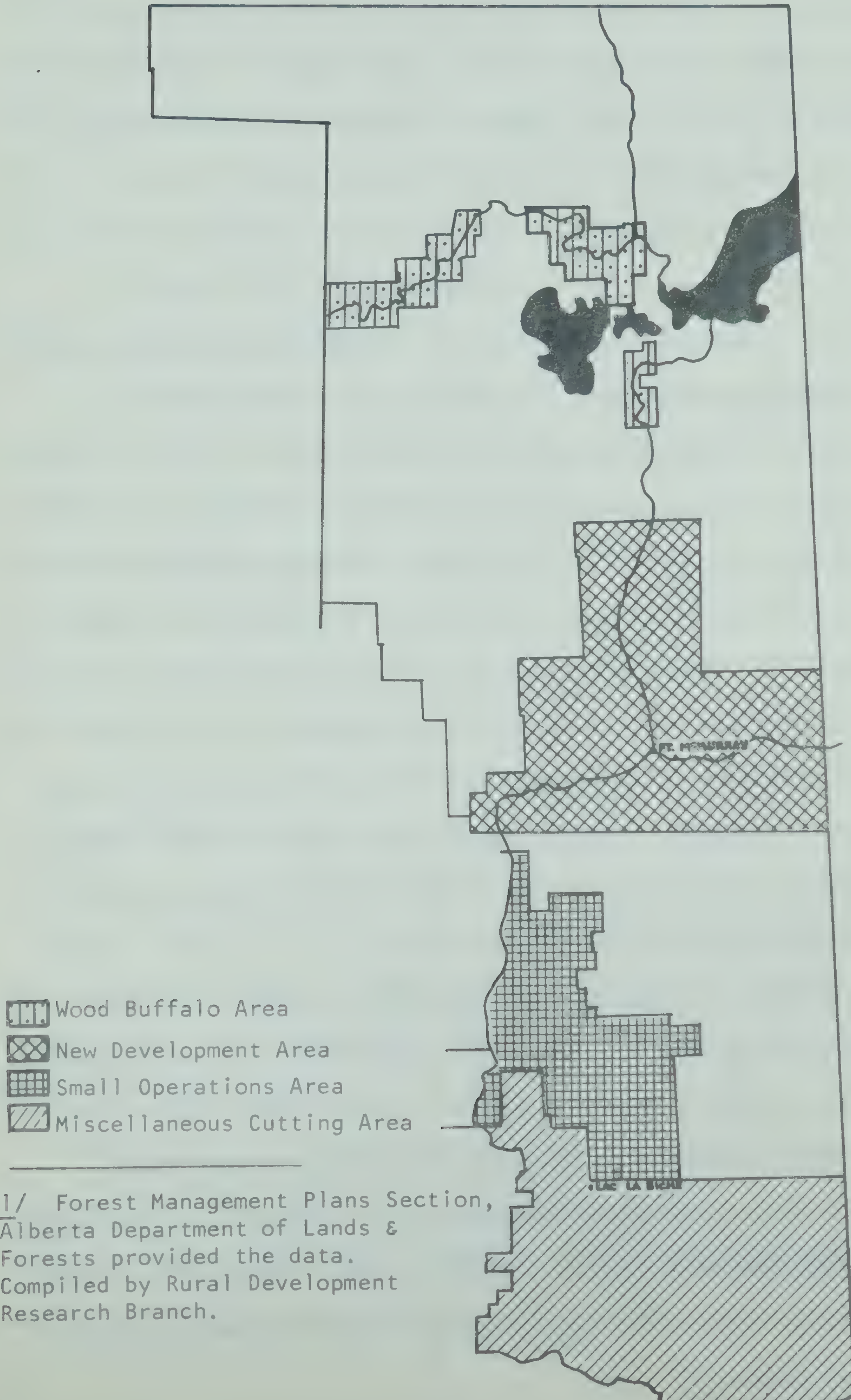
THE FOREST INDUSTRY IN C. D. 12

Most of the Lac La Biche and Athabasca Forests lie within Census Division 12. Of a total of 35,000,000 acres, forests or potential forest lands cover about 1/3, with another 1/3 covered by bush, water, rocks and muskeg. Another 9 million acres, or 1/4 of the land, is included in Wood Buffalo National Park. The remaining 2 million acres is farmland.

The 11 million acres of the forested area and potential forest area can be subdivided into 4 categories on the basis of the types of logging operations presently underway. The map outlines the four different areas.

The first division, is located at the southern tip of the C. D. and lies, for the most part, within the yellow zone. This land has been set aside for agricultural production and much of it is farm land. It has, however, provided a large share of the total timber output from 1960 to 1966, amounting to slightly over 30% of the total cumulative cut of 69 million board feet taken from the Lac La Biche Forest during the period. The timber operations in this area are characterized by small, portable sawmills, and a high proportion of farm labour. The farmers from the surrounding area find the winter occupation complementary with farming and as a result 8 of 11 custom sawmills were operated by farmers. Another reason for the number of farmers involved in lumbering is that much of this wood comes from crown land and government regulations require that most of the wood be used on farmsteads. Lumber, (both poplar and spruce) and fence posts are the main products produced from the timber in this area.

Figure 26 MAJOR LOGGING AREAS IN C. D. 12 [1]



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[1] Forest Management Plans Section, Alberta Department of Lands & Forests provided the data. Compiled by Rural Development Research Branch.

A second type of logging activity can be classed as the small commercial operation. This is centered around Wandering River where access to transportation, both road and rail, is not as much of a limiting factor as in other areas of C.D. 12. The output of the sawmills range from 300,000 f.b.m. to 4,000,000 f.b.m. per year of sawn lumber. Almost all of the timber cut in this area is sawn into lumber and then finished by planing mills in the area with the resulting products distributed to points in Alberta. Production from this area has been fairly substantial in the last 6 years, averaging over 6 MM f.b.m. during the period.

The third type of logging activity is differentiated in terms of the stage of development and location and size of sawmill operation. The Athabasca Forest, in the area around Fort McMurray, provides the location for these timber operations. As yet, only minor quantities of timber have been cut although it is anticipated that this coming logging season will see a substantial increase in output. The major producer in this area will be Primrose Forest Products who hold 99% of the present timber quotas in the stands surrounding McMurray (Management Units A2, A3 & A5)[1/] This lumber will be taken to McMurray for sawmilling and planing and shipped via the NAR to Edmonton and subsequent markets.

The fourth grouping of logging activity can be thought of as operations in or near Wood Buffalo National Park. Here the stands are larger, denser, and less scattered than those further to the south. Much of the lumber is overmature and therefore, accelerated cutting is permitted. Almost all of the timber lies along the Peace and Athabasca River valleys which have provided adequate moisture conditions and a degree of protection from forest fires. This section has the largest scale logging and sawing operations of any area in C. D. 12.

[1/] Primrose also owns quotas in A7, which borders the Park.

Three sawmills are located within the Park while one is operating at Embarass, which is south west of Lake Athabasca, bordering the park. Production from these four mills ranges from a low of 5 MM f.b.m. in the smallest to 15 MM f.b.m. in the largest. One of the mills has been operating in the park for at least 10 years while the other three are just beginning production.

Structure of the Industry

As with the other primary producing industries, lumbering has undergone some definite trends in the last few years. The period from the mid-forties to the late fifties saw the growth of many small sawmill and logging operations. More recently, rising costs of labor and equipment combined with changing technology and conservation policies have brought about a decline in the number of small operators and a trend towards larger integrated sawmills and larger logging berths.

There have been 20 quota blocks sold in C. D. 12. These range in size from the smallest of 0.1 MM f.b.m. to the largest of 6.3 MM f.b.m. A number of these are owned by the same companies who have grouped them to provide more efficient operating areas. There are 12 different individuals or companies with quotas in C. D. 12 and their holdings range in size from 0.1 MM f.b.m. to 22.4 MM f.b.m. Of these, 5 operators have quotas of less than 1 MM f.b.m. each.

There are other timber operations outside of C. D. 12 which should probably be considered in terms of employment effects on C. D. 12. In the Wandering River area, quotas totalling 2.8 MM f.b.m. have been sold on the west side of the Athabasca River, which forms the census division boundary.

However, this area has not been included as a part of the forest industry of C.D. 12, mainly because most of the employees live outside the C.D. Only areas completely within the census boundaries are considered below.

There are three major operators in C.D. 12: Swanson Lumber confine their operations entirely to Wood Buffalo National Park; Primrose Forest Products have just begun production in the Athabasca Forest, while Pelican Spruce Mills have been operating for a number of years in the Lac La Biche Forest. Primrose Forest Products is a new company and has recently built a sawmill-planer mill complex in Fort McMurray. All of their quotas, except one at the south-east edge of Wood Buffalo Park, are within a radius of 60 miles of the mill at McMurray. The company plans to establish an operation which will provide year-round employment for the skilled labor they require. A drying kiln is one piece of equipment which will be installed to produce a longer planing season. There will, however, be job opportunities in the logging camps during the winter which will provide complementary employment to farming, fishing and construction workers.

Primrose also hold quotas at the south east edge of Wood Buffalo Park and in the Athabasca Forest, adjacent to the park. They plan to establish a sawmill in this area capable of producing around 10 MM f.b.m. per year with the rough lumber barged to McMurray for planing.

Swanson's Lumber, in Wood Buffalo Park, have increased their output from the previously constant level of around 12 MM f.b.m. per year to double that figure. The increase has been due to the introduction of two new sawmill operations at the western edge of the Park. Lumber from these latter sawmills is shipped by road to High Level for planing and subsequent export.

The timber from around Sweetgrass Landing is both cut and planed there and what is not shipped to the uranium mines east of Lake Athabasca is barged down the Athabasca River to McMurray. From there it is shipped by rail to export markets in Eastern Canada and the U.S.A.

Pelican Spruce Mills, who have operated in this area for a number of years, hold quotas totalling 12 MM f.b.m. in the Wandering River area.

Imperial Lumber, who in the 1940's took between 30 and 40 MM f.b.m. out of C.D. 12, own a small quota (2.2 MM f.b.m.) near Wandering River and R. H. Pollock is operating a 5 MM f.b.m. sawmill north of Lac La Biche.

Outlook

In Wood Buffalo Park, Swanson's Lumber will likely increase their output to around 30 MM f.b.m. per year, with 15 MM planed in the area or shipped to Uranium City and the remaining 15 MM trucked to High Level and planed there. Primrose Forest Products are developing a quota holding of about 7 MM f.b.m. at the south east edge of the Park.

In the Lac La Biche Forest, it appears that there will be three sawmills producing about 5 MM f.b.m. per year and one with an output of about 12 MM f.b.m. per year. Depending upon alternative employment opportunities, labor shortages, and rising costs, the small mill operators in this area will be under more and more economic pressures to obtain other kinds of winter employment or to sub-contract for logging operations with larger companies.

The third centre of activity will be in the Athabasca Forest around McMurray. Primrose Forest Products is the key to development, since they presently hold about 99% of the quotas in this area. These amount to about 23 MM f.b.m. per year. There is a possibility of further quotas being sold in this area, but not in the immediate future; at least not until present quotas in the area are utilized. In 1966-67 only 3% of the quota cut in this forest was taken out.

Based on the above information it is estimated that timber production in C.D. 12 will increase to approximately 87 MM f.b.m. by 1976, up from the 1966 figures of 23 MM f.b.m. Of the 1976 estimate, 37 MM f.b.m. will come from Wood Buffalo Park, and 25 MM f.b.m. from each of the Lac La Biche and Athabasca Forests.

Of the above timber, an estimated 65 MM f.b.m. will require planing in C.D. 12, while 15 MM f.b.m. will be trucked out of the census division and the remaining 7 MM will not require planing.

Major Trend Influences

The forest industry in Alberta in general appears to be approaching a new structure. As mentioned above, the major lumber companies are in the process of consolidating their logging-milling-planing operations at central points. The industry will probably eventually evolve to the point where there will be one or two of these complexes per forest producing 20 MM f.b.m. or more of planed lumber. In addition, there will be a number of smaller operators with output greater than 1 MM f.b.m. and more likely in the 3 MM f.b.m. range. In the 1966-67 season, six companies accounted for 50% of the coniferous lumber production and the 45 operators with lumber production over 1 MM f.b.m. accounted for 93% of the total lumber production. The remaining 98 quota holders accounted for 5%, with miscellaneous permit holders making up the remaining 2%. Put another way, 4% of the quota holders accounted for 50% of the coniferous lumber production; 30% produced 93% of the lumber while the remaining operators, representing 70% produced only 5% of the output. With the move towards more efficient equipment for both logging and hauling;

rising labour costs and the associated labour demands by the larger expanding companies; the economic pressures on the very small operator will increase. Indeed, one may question whether or not the small operators would be better off financially by either working for other larger quota holders or pooling their resources into co-operative operations.

This trend will be particularly strong in C.D. 12 since there are presently only four quota holders with less than a 1 MM f.b.m. quota. The result will be that most of the quota operations will be a minimum of 3 MM f.b.m., which is considered to be the minimum size for a profitable sawmilling operation. This last point is worth noting because the economic pressures dictating more efficient operations will then effect only a few people employed in the smaller sawmills.

Other than the quota holders mentioned above, there will still remain the small custom mill operators (usually farmers) who will likely continue producing until the local supply of timber is exhausted. However, this occupation is only a winter sideline to their farming operations. Perhaps, if the economics of farming in that area improve, (as suggested in other parts of this report) these farmers may no longer find the small sawmilling operations either necessary or desirable.

Non-Trend Influences

The establishment of additional pulp mills in Alberta could result in a different type of logging complex. Presently, it appears that at least two pulp mills will be constructed in the next five years; one near Whitecourt and one near Grande Prairie or Grande Cache. These mills may eventually decide to purchase pulp chips from other companies rather than make all their own requirements. If this happens, there will be a stimulus for the larger lumbering companies to install chipping equipment. This in turn would mean that lumber output would have to be increased to balance the operation. This, then, would favour the trend towards larger and more integrated mills. In addition, this type of mill lends itself to further diversification since much of the fixed capital can be spread over different operations. For example, a plywood or particleboard operation might become feasible even though, at the present time, production of these exclusively is apparently not profitable for firms in Alberta.

The experience in British Columbia illustrates this influence. In 1957 in the Prince George Forest District there were 704 sawmills producing 840 MM f.b.m. Pulp mills were constructed after 1957 and by 1966, there were only 299 sawmills with a cut of 1,350 MM f.b.m. per year. As well as the consolidated sawmills, planer mills were integrated into a larger complex. One result has been more year-round employment in the forest industry.

The next question that arises is whether the above influences will bring about any changes in the forest industry in C.D. 12. Since all three pulp mills will be located from 300 to 400 miles from C.D. 12 boundaries, transportation problems put C.D. 12 at an immediate disadvantage. However, it is interesting to note that one of the first firms likely to send chips to the plant in Hinton, cuts some of the timber from an area bordering on C.D. 12. Also, in Eastern Canada, pulp chips are presently hauled from 300 to 400 miles. Much depends on the cost structure of the chip mill and the degree of integration of production.

The determining factor in development of combined lumber and chip mills in C.D. 12 appears to be transportation costs. If the lumber companies are able to obtain volume rate concessions from the NAR, then it might be possible for chipping to take place in C.D. 12. If the transportation costs cannot be compensated for, then it is unlikely that C.D. 12 can develop any chipping operations, particularly since these pulp mills are or will be built in the centre of large forest resources - in most cases, of better volume per acre than in C.D. 12 and a much larger total volume.

Projected Employment in the Forest Industry [1]

At the present time the forest operations in C.D. 12 have reached a 'take off' stage. Output, which has remained fairly static, over the past six years, will increase dramatically in the next two to three years. The previous levels of around 20 MM f.b.m. annually will increase to between 60 and 70 MM f.b.m. per year within three years, assuming that a major recession does not affect the lumber industry.[2]

The present logging operations provide employment mainly during the winter months when the muskeg trails are frozen solid. By 1976, it is anticipated that most logging will still be done in the winter. This means, that with an output of around 90 MM f.b.m. per year, about 255 men will be required in the logging operations in all of C.D. 12: 255 during the winter and 30 year around.

In addition, a labour force will be required to saw and plane the logs and rough lumber. These are the occupations where most changes will take place. Presently, all sawing is carried out in conjunction with logging, and therefore, employment in this occupation is restricted to the winter months. By 1976, more sawmilling will be carried on during the summer months; a change, particularly affecting the Athabasca Forest.

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[1] Includes logging, sawing and planing to better illustrate the relationship. Sawing and Planing are classed as manufacturing operations in the SIC.

[2] With the present single family housing shortage, it may be anticipated that the lumber demand will remain firm.

An attempt will be made to employ the sawmill employees year round, partly because of a shortage of skilled labour. Of the estimated lumber production of 73 MM f.b.m. per year, about 15 MM f.b.m. will be sawn during the summer months. This will mean employment for about 185 workers in the winter and 22 full-time workers in the sawing operations.

The third area of adjustment will be in the planing sector. Presently, about one half of the lumber from C.D. 12 is planed during the summer. By 1976, about one half of the planed lumber will come from mills producing the year round. The remaining lamber will be divided equally between planing in the summer only and planing in the winter only. The result will be, employment for 100 man year equivalents. About 50 men will have year round employment with the same firms while the other 50 men will work during the winter with one group of firms and during the summer with another group of firms. It should be noted that for the jobs split between summer and winter, the same 50 men may not be employed. For example, 50 people who farm in the summer may work in a planer mill during the winter, while 50 people who log during the winter may work in planer mills during the summer. Or it may turn out that the group of 50 men may simply transfer from winter planing operations to summer planing operations and thereby obtain year round employment in planer mills; albeit, with different firms for the different seasons.

In addition to those directly involved in lumbering, an allowance should be made for the people in the forest industry, not directly involved in production. This would include the cooks, cooks' helpers, maintenance workers, etc. The number of service personnel is placed, conservatively, at 30 by 1976.

Another group of employees in the forest industry is composed of government personnel - mainly rangers, fire protection personnel and administrative staff. This is estimated to be 83 people by 1976.

The last group of people employed are the administrative staff of the logging, sawing and planing operations. The previous figures did not include an estimate of this employment. By 1976, an estimated 30 people will be employed in the administrative part of the forest industry in C.D. 12.

The net result of the foregoing can be summarized in the following table:

Table 36 1976 ESTIMATE OF EMPLOYMENT 1/

IN THE FOREST INDUSTRY

	Logging	Sawing	Planing	Total	Man-Year 2/ Equivalents
Winter Employment Only	225	185	50	460	230
Summer Employment Only	-	-	50	50	25
Full-Time Employment	30	22	50	102	102
Government Forestry Personnel					83
Service Personnel					30
Administrative Personnel					30
TOTAL MAN-YEAR EQUIVALENT					500

The above estimate should be considered conservative since they were developed from figures which reflect a fairly high degree of production

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1/ Includes logging, sawing and planing. (Special tabulations, Rural Development Branch).

2/ Defined as the equivalent of year round employment for one man.

efficiency. However, because the present cost and price trends are likely to continue, more and more efficient operations become a necessity if these producers are to remain in business. The marginal nature of many of the timber stands requires that production efficiencies be maximized (particularly in this area) to remain competitive both within Alberta and on export markets.

One group of timber operators has been omitted from the above figures and this is the custom sawmill operators. Projections were not made for this group because firstly, they are mainly farmers and hopefully, they will be able to acquire a viable farming unit. Secondly, the timber which they are (and have been) cutting is not under a quota system and therefore there is the possibility that timber supplies close to their farms will be exhausted. In any case the number of people employed by these custom sawmills is small.

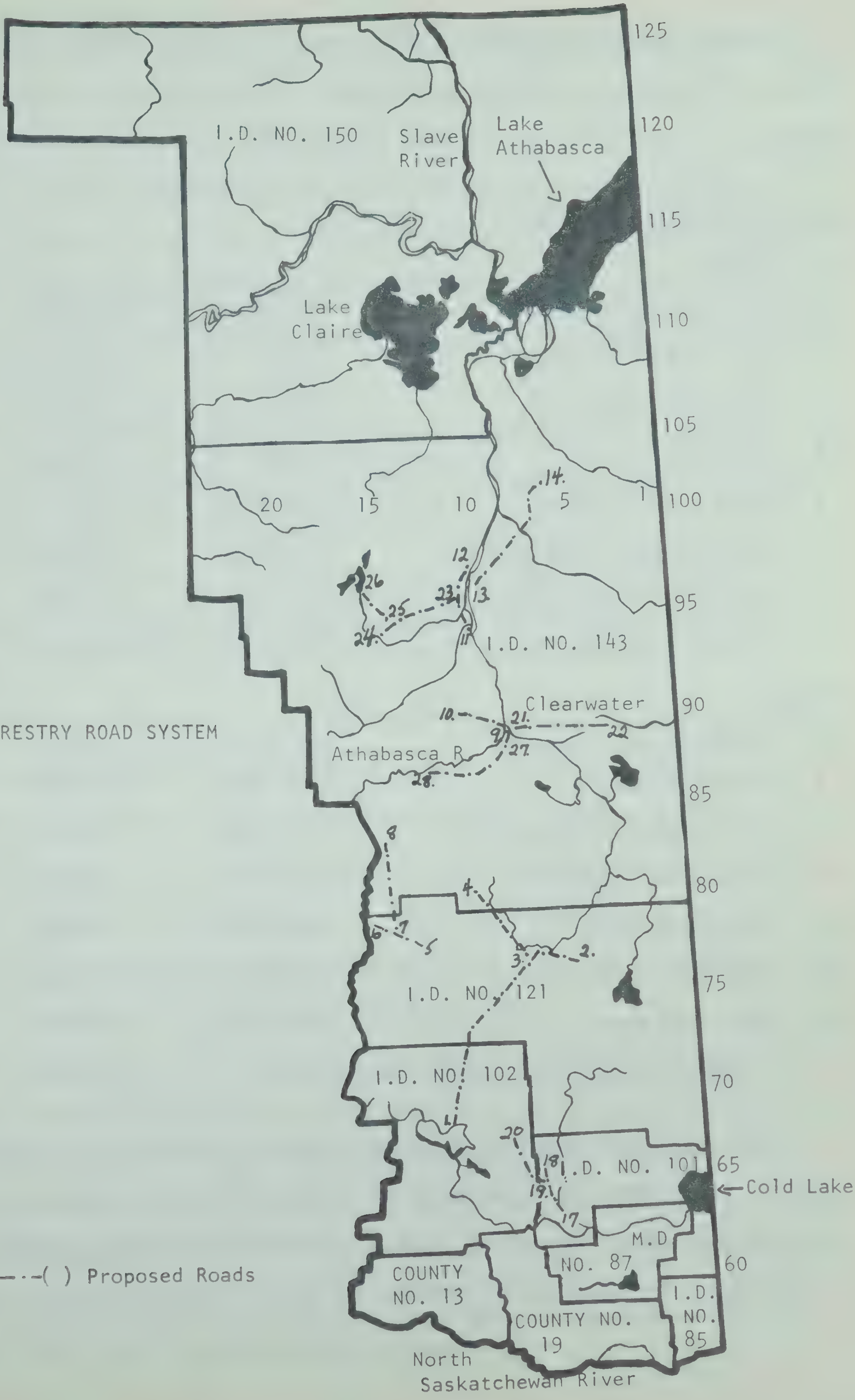
Forest Industry Improvement Program

Roads play a vital role in the development of the forest industry, both as routes for moving logs and lumber out of an area, and for improving fire control measures. Other considerations such as better access for people in the area, the recreation potential and commercial fishing operations, also play a role in establishing road building priorities.

North of Lac La Biche, there is only one major all weather road; the rest depend on the weather and in many cases, they are trails which can only be travelled when the ground is frozen. It is difficult to move men and machines by road during the summer when fires are a problem.

The map on the next page outlines the system of forestry roads which are needed for good forest management.

Figure 27



PROPOSED FORESTRY ROAD SYSTEM

( )—·—·—·-( ) Proposed Roads

A summary of the expenditures in the Lac La Biche and Athabasca Forests follows. The numbers in brackets correspond to the location of the road on the map.

Summary of Estimated Costs

Lac La Biche

1.	Lac La Biche to Conklin	(1)-(3)-(2)	$ 319,000
2.	Christina River Road	(3)-(4)	321,200
3.	Agnes Lake Road	(5)-(6)	245,300
4.	House River Road	(7)-(8)	478,500
5.	Conklin Janvier Road	(15)-(16)	484,000
6.	Truman Siebert Lake Road	(17)-(18)	247,500
7.	Siebert to Barnegat Heart Lake Road	(19)-(18)	217,800
	Total Estimated Cost for Lac La Biche Forest		$2,313,300

Athabasca

8.	Thickwood Tower Road	(9)-(10)	$ 103,400
9.	Rattlepan Road	(21)-(22)	1,199,000
10.	Fort McKay-Birch Mountain	(11)-(12)	535,700
11.	Richardson Tower Road	(13)-(14)	139,700
12.	Horse River Road	(27)-(28)	484,000
13.	Ells Tower Road	(23)-(24)	616,000
14.	Namur Lake Road	(25)-(26)	287,100
	Total Estimated Cost for Athabasca Forest		$3,364,900

Total estimated cost for the above forestry roads amounts to $5,678,200. In some cases, these roads would be mainly for fire control. However, in the long run, good fire control leads to increased production and employment in the area. A more immediate use would be to provide good access to many lakes in the area and thus assist in increasing the recreation and tourism potential.

One program which could readily be undertaken is reforestation. Thousands of acres[1/] of timber have been burnt over and many of these areas provide excellent sites for both pine and/or spruce timber. An estimated minimum of $40,000 per year could be spent on reforestation projects. This could readily be increased by 25% each year over the next 10 years since such large acreages require reforestation.

Stand improvement projects would also be very valuable in increasing the medium and long term yields of the forests. For example, a parasitic attack in management units A-10, A-11, and A-12 has ruined the pine stands. This timber should be destroyed (probably by fire) and replaced with fully stocked clean stands. Many other areas require thinning before full potentials could be reached.

The above two projects; i.e. reforestation and stand improvement, will have the long term benefits of improving timber yield substantially. In the short term, the projects will provide employment and training for many of the people in the area. In the case of the road projects, the long term benefits will again be higher timber yields. In the short term they will increase production, (through better access) provide access to isolated communities and assist in the realization of the recreation potential.

Another project which is of major importance is the establishment of training programs to provide the skills necessary for the harvesting and subsequent manufacture of the timber resource. Throughout most of northern Alberta, the forest industry has expanded rapidly in the past 4 years. Lumber markets are very strong and will likely remain so because of the strong demand

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[1/] Total of around 3.0 million acres have been burnt; however many of these areas are in various stages of regeneration.

for single-dwelling homes. On the other hand, demand for pulp is very weak as the world supply is too great for demand. However, this market is expected to firm over the next 3 years and it is likely that 2 new pulp mills will be constructed in northwestern Alberta by 1975. The result of this is that there is a strong demand for skilled workers in the forest industry and this demand will definitely increase in the near future. It is necessary to ensure that there will be enough trained people to fill the positions. It is hoped that a training program can be developed for the native people which will not only teach the required skills but will provide the social measures needed to allow them to put their skills into practice.

COMMERCIAL FISHING IN C.D. 12

Commercial fishing has had a long history in C.D. 12, dating back to 1915 when the first operations began on Lake Athabasca. Prior to 1950, large catches were coming from the lakes in the region. In the 1949-50 season, approximately 1.3 million pounds of fish were caught. Tullibee, pike and whitefish accounted for about 80% of the total weight, amounting to 366,000 lb., 421,000 lb., and 245,000 lb., respectively. In that season, fishermen received approximately $73,000 for this catch.

By the 1961-62 season, the total catch had risen to about 3 million pounds with tullibee, pike, and whitefish making up about 85% of the total weight caught. Revenue accruing to fishermen was an estimated $235,000. In the year span from 1949 - 1961, the total catch increased 2.3 times while revenue increased 3.2 times.

There was a definite upward trend over the period in terms of the total catch. At the same time, there were wide fluctuations in the catch by species, as the following figures indicate. [1]

The tullibee catch showed the greatest yearly variations although a general rising trend is evident. The weight of pike caught maintained a relatively constant level while the pickerel catch rose to a peak in 1965 and then diminished substantially. Whitefish catch exhibited what appears to be a cyclical trend with the bottom of the cycle reached in 1964 and an upward trend since then. Over the last 20 years, the whitefish catch in the whole of Alberta has exhibited a very definite trend, rising from a low in 1948 of 1.8 million pounds to a high of 5.8 million pounds in the

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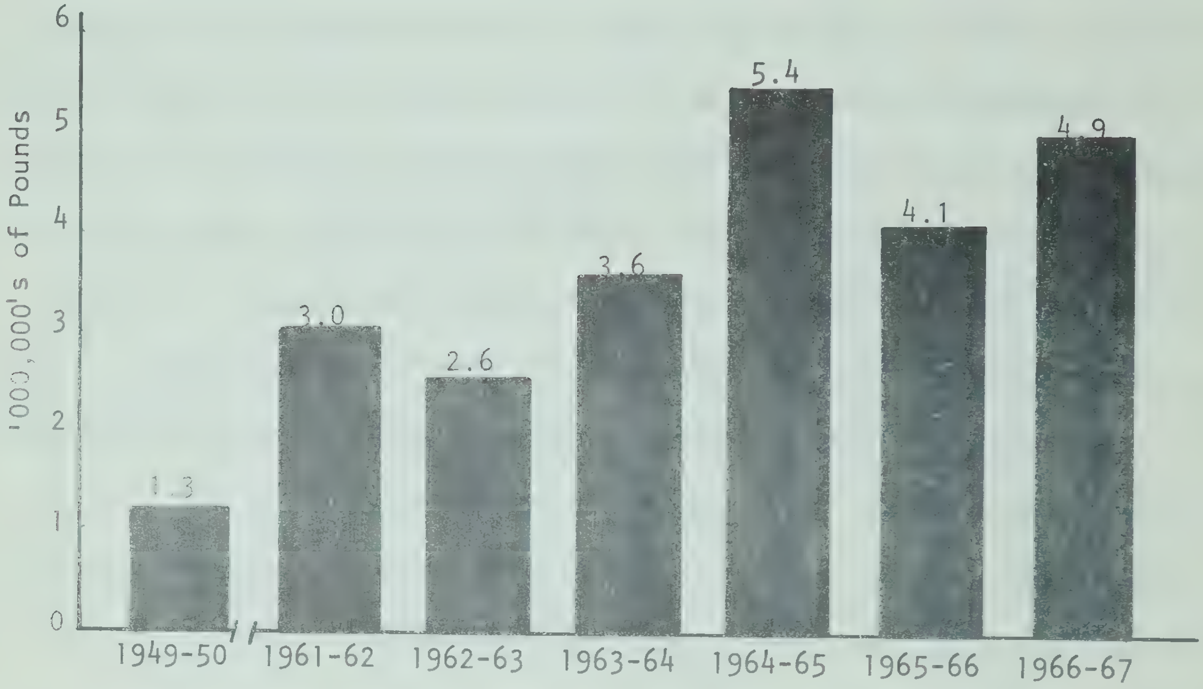
[1] Fish and Wildlife Branch, Alberta Department of Lands & Forests. (unpublished data)

Figure 28 TOTAL CATCH OF FISH IN C. D. 12 - 1949-50 & 1961-66*



* Fiscal year ending March 31.

Figure 29 CATCH OF TULLIBEE IN C. D. 12 - 1949-50 & 1961-66

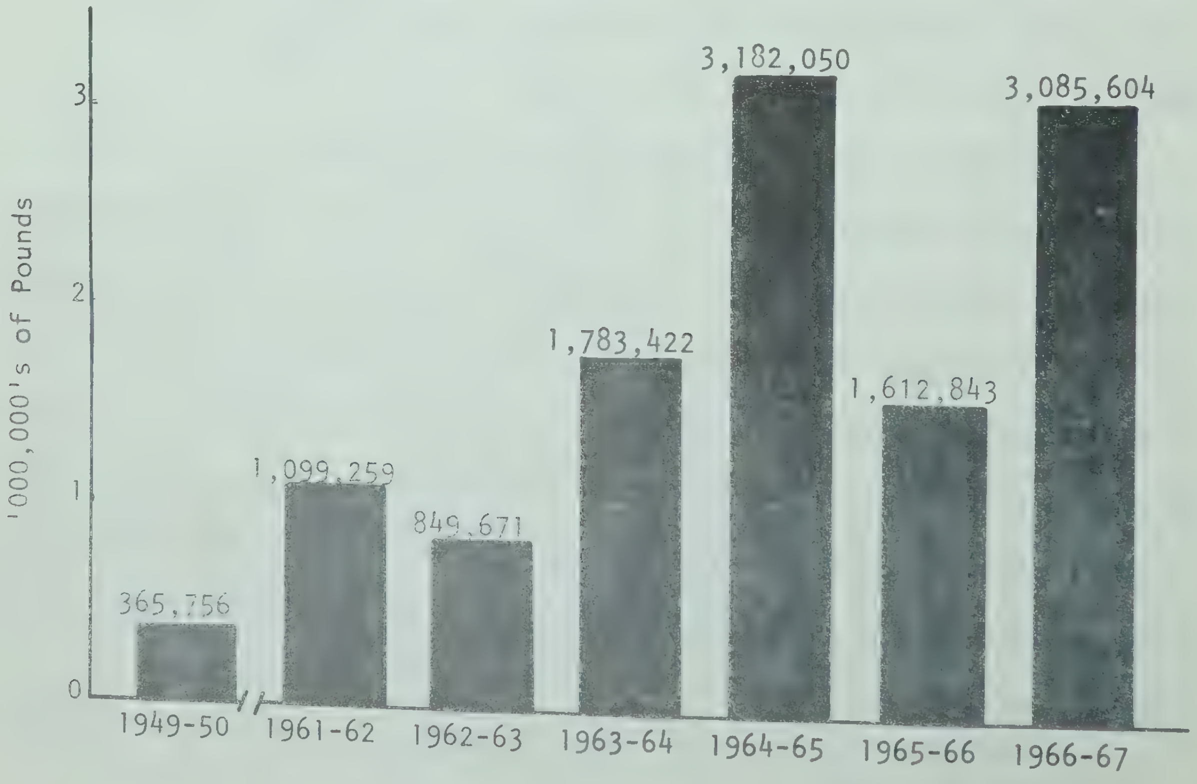
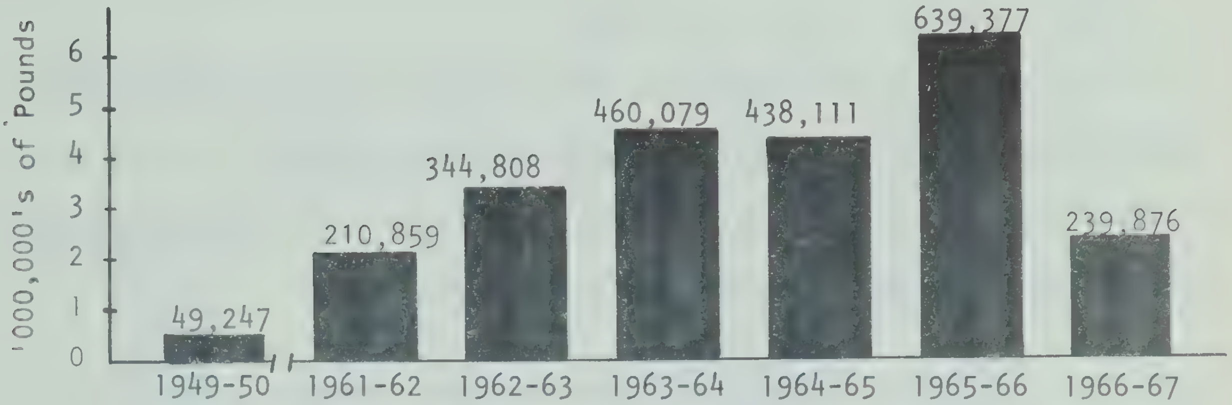


Figure 30 CATCH OF PICKEREL IN C. D. 12 - 1949-50 & 1961-66*



* Fiscal year ending March 31.

Figure 31 CATCH OF PIKE IN C. D. 12 - 1949-50 & 1961-66

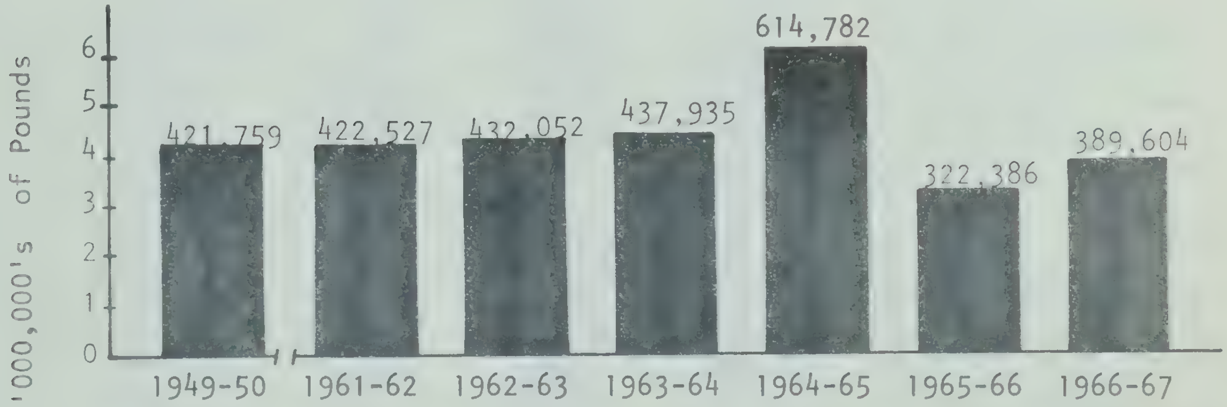
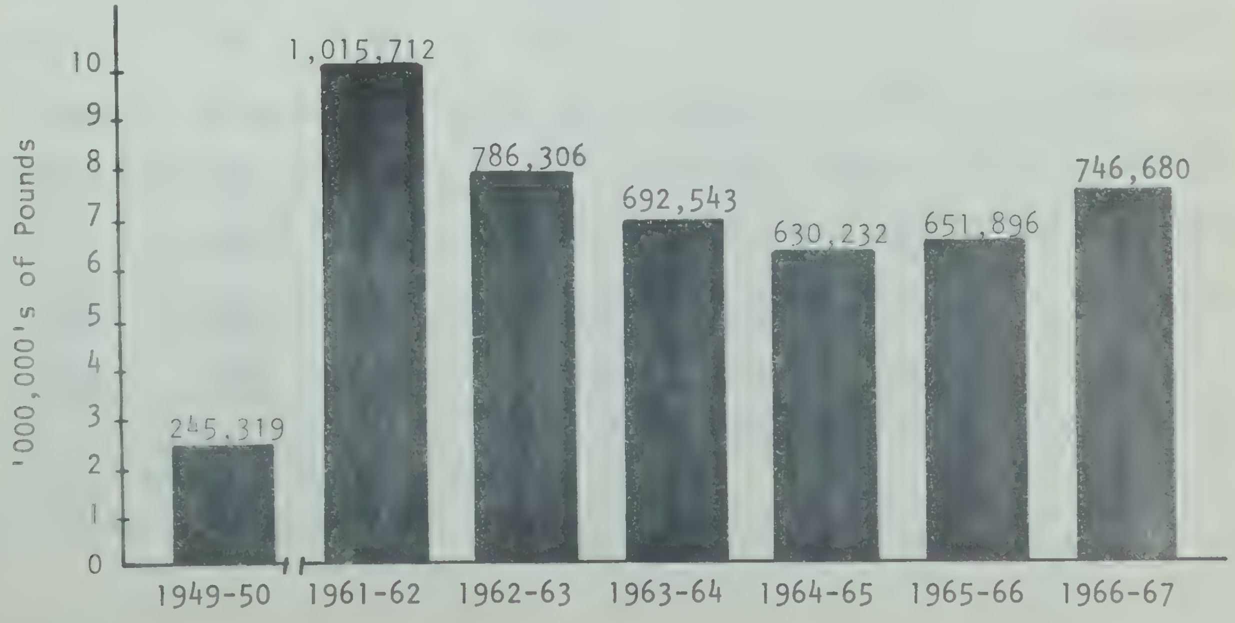


Figure 32 CATCH OF WHITEFISH IN C. D. 12 - 1949-50 & 1961-66



1960-61 season and down to a low of 1.7 million in 1964-65. Hopefully, the small increases in whitefish catch recently indicated that the upward portion of the cycle is beginning again.

There are about forty lakes in C.D. 12 which support commercial fishing operations, of these thirteen have produced yearly catches of 50,000 pounds or more each during most of the last six years. The table below shows these lakes and the yearly catches:

Table 37 COMMERCIAL FISH CATCH IN MAJOR LAKES - C. D. 12 1/

Lake	1961/62*	1962/63	1963/64	1964/65	1965/66	1966/67
			('000's of lb.)			
Athabasca	178	324	204	390	285	311
Beaver	54	64	52	55	75	50
Cold	134	93	348	300	471	719
Heart	143	157	45	29	290	15
Lac La Biche	804	492	1264	3250	1680	2403
Pinehurst	105	158	239	126	137	198
Richardson	-	-	214	157	130	80
Spencer	40	48	55	79	44	56
Touchwood	22	72	54	19	129	193
Winnifred	236	250	-	35	46	97
Wolf	72	71	47	65	93	78
Muriel	137	86	62	30	64	63
Whitefish	511	296	215	211	238	178
TOTAL	2436	2111	2799	4746	3682	4441

* For the fiscal year ending March 31.

1/ Special tabulations, Rural Development Research Branch. Data provided by Fish & Wildlife Branch. (unpublished)

The above lakes have accounted for most of the total catch, as the following table indicates.

PERCENTAGE OF COMMERCIAL FISH CAUGHT IN MAJOR LAKES OF C.D. 12 - 1961-66*

Table 38	1961/62	1962/63	1963/64	1964/65	1965/66	1966/67 [1]
Total Catch from Major Lakes ('000 lb.)	2,436	2,111	2,799	4,746	3,682	4,441
Total C.D. 12 Catch ('000 lb.)	3,000	2,559	3,566	5,426	4,076	4,923
Portion From Major Lakes (%)	81	82	78	87	90	90

*Fiscal year ending March 31

One point to note is that 97% of the tullibee is taken from these lakes. More precisely, 97% is taken from seven of the thirteen lakes and those seven are located in the southern extreme of C.D. 12 between townships 62 and 70. The major reason is that tullibee is used for mink feed on the fur farms in the area. (Figure 29, Page 140) shows the catch by species in the major lakes for the 1966-67 season which is also representative of other years.

Revenue

Of particular importance is the total revenue received by the fishermen in C.D. 12 for the catch in the years mentioned above. Income received by fishermen amounted to $73,000 in 1949-50, $235,000 in 1961-62 and $385,000 in 1966-67. In 1965-66 there were an estimated 800 people engaged, to some

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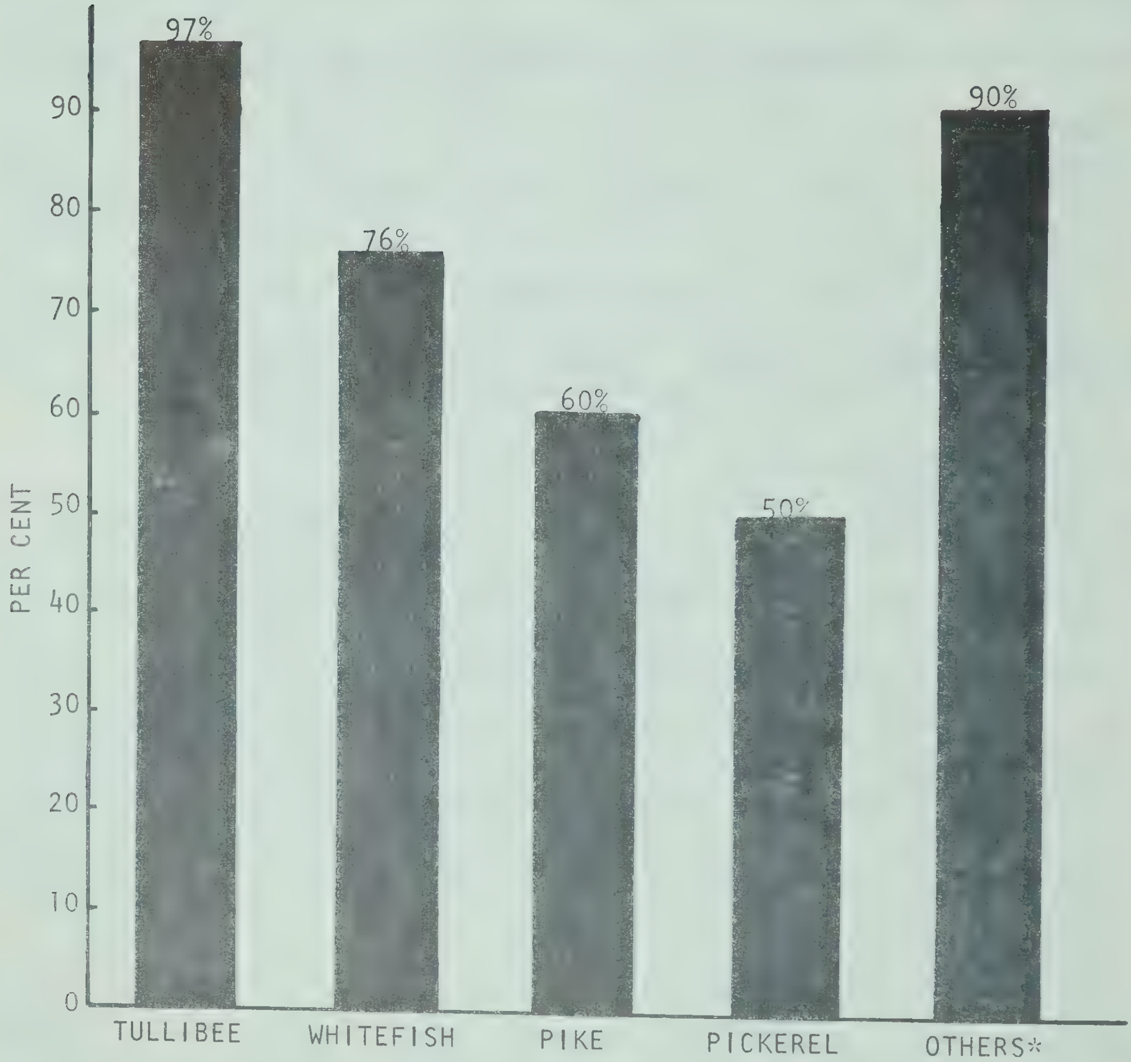
[1] Special tabulations, Rural Development Research Branch. Data provided by Fish & Wildlife Branch. (unpublished)

Figure 33 PERCENTAGE OF FISH CAUGHT IN MAJOR LAKES[1/] IN C. D. 12 - 1966-67 (By Species)



*Trout, Goldeyes, Perch, Suckers, Ling

1/ Special Tabulations, Rural Development Research Branch, Data provided by Fish & Wildlife Branch. (unpublished) degree, in fishing. Approximately $325,000 was received from the sale of fish in that same year which amounts to an average of about $400 per fisherman. Of course, many of the people who took out commercial fishing licences received much less than the average. Unfortunately no figures on income distribution are available so it is impossible to determine how many people actually relied on fishing for a significant portion of their income. It is known, however, that very few people rely on fishing as a sole source of income. It is of note that Lesser Slave Lake, which is outside of C.D. 12, has fishing conditions very similar to those in C.D. 12. The most significant similarity is that tullibee, which is used as mink food by Lesser Slave Lake mink ranchers, is the main product. For a ten-year period (1951-61) the average catch from Lesser Slave Lake of just over 4 million pounds annually was brought in by seven full-time and over two hundred part-time fishermen. [1/] The 1961-67 average annual catch of the entire C.D. 12 was just under 4 million pounds and this was brought in by no less than eight hundred fishermen, a fact that illustrates the part-time nature of the work.

Figure 34, Page 146 illustrates the trend in the total value of fish sold by fishermen. A rising trend is evident and in an absolute sense, total revenue is rising. However, some increase could be expected due solely to the general inflationary increases of the last few years.

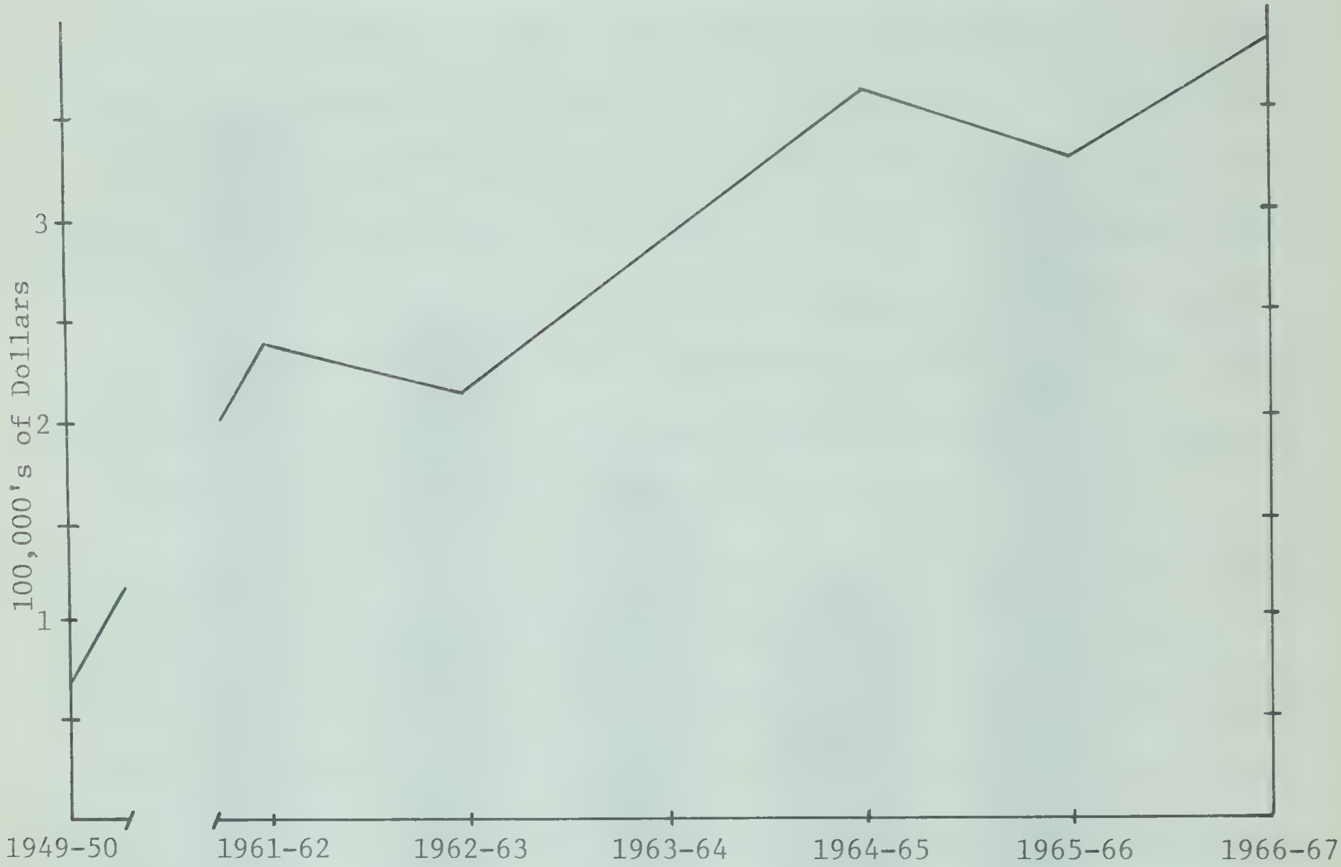
Supply and Prices

The average price has varied inversely with the supply of fish; that is, as the provincial supply increased, the provincial average price decreased. (See Figure 35, Page 147)

[1/] Janssen, V.T.; A Benefit-Cost Analysis of Flood Control Lesser Slave Lake, Rural Development Research Branch, Economics Division, Alberta D.O.A., Feb. 1967. pp. 20-21.

Figure 34 VALUE OF CATCH TO FISHERMEN IN C. D. 12 [1/]

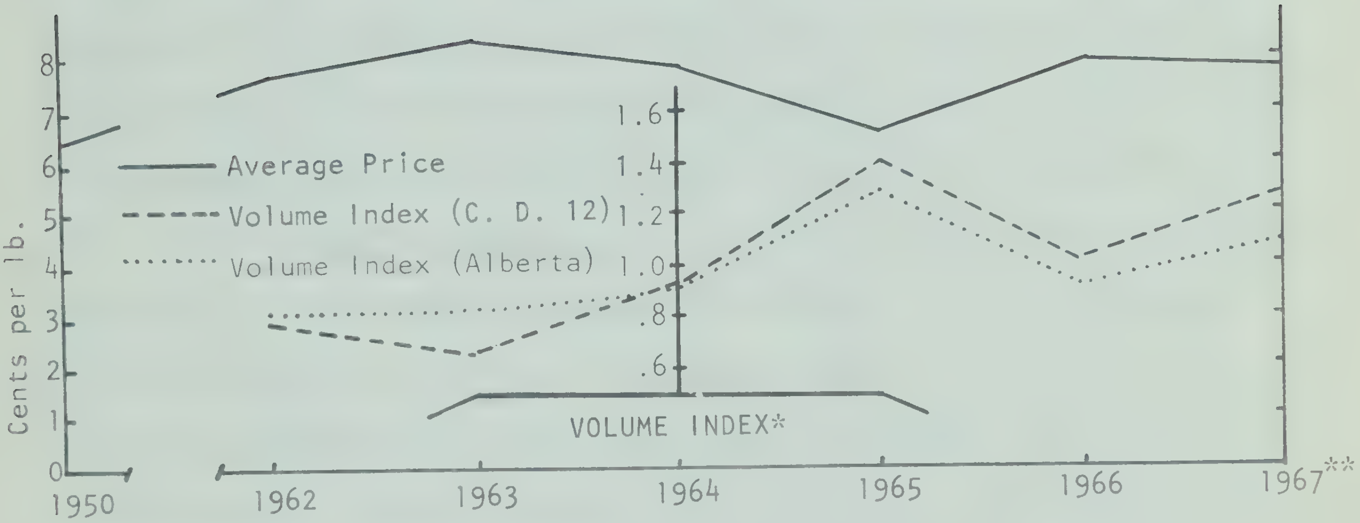
1949-50 AND 1961-66*



* Fiscal year ending March 31.

[1/] Special tabulations, Rural Development Research Branch. Data provided by Fish & Wildlife Branch. (unpublished)

Figure 35 AVERAGE PRICE OF FISH PAID TO FISHERMEN, C. D. 12[1/]
1961 - 1966



*Based on the 6-year average catch (1961-66) of 3.9 million pounds of fish equaling 1 for C. D. 12 catch and 9.8 million pounds equaling 1 for the average catch in the province.

**Fiscal year ending March 31.

[1/] Special tabulations, Rural Development Research Branch. Data provided by Fish & Wildlife Branch. (unpublished)

Note that the Alberta and C.D. 12 volume indexes grew at approximately the same rate during the period, so that what is true for Alberta holds for C.D. 12. Therefore, the fishermen in C.D. 12 are in somewhat a dilemma since a larger catch has been associated with a depressed average price. 1/ However, one point to note is that even though the above relationship holds, total revenue still increased as shown in Figure .

A few comments should be made on price determination in C.D. 12. Tullibee prices are determined by supply-demand conditions in the immediate area, since almost all of this species is used by the fur farms in the area. Very little is shipped any distance because of the low value per pound. A ceiling is placed on tullibee prices because of competitive pressures of offal from the B.C. coast and tullibee from Great Slave Lake.

Whitefish prices, determined by the export market, (70% exported from the province) have been rising steadily for the past six years from 12¢ to 21¢ per pound. Apparently, increased production of this species would be particularly profitable, and if, as mentioned earlier, the whitefish cycle is on the upswing, fishermen can look forward to rising incomes.

Pickerel has a similar type of pricing structure as whitefish. Over 60% of this species is shipped to points outside of Alberta and the price is, therefore, dependent on the export situation. From 1961 to 1966, the price increased from 11¢ per pound to 17¢ per pound.

One point to note is that the export prices are determined by the supply-demand conditions of the American market.

1/ The relationship depicted in the graph is not necessarily causal, since the export market exerts a substantial effect on prices. The total Canadian catch of freshwater fish has followed a similar path to the Alberta catch and this probably explains more fully the supply-price relation.

Note that tullibee accounts for 49% of the total weight caught but only 29% of the revenue. Conversely, whitefish made up 19% of the total catch by weight but 37% of the revenue.

The fishing industry in Alberta is fairly seasonal with about 60% caught in the 6 months between April 1 and September 30. The rest of the catch is divided quite evenly between the October through December and the January through March seasons. There are, however, several points of departure worthy of mention. The pickerel catch is concentrated in the summer season, as are the tullibee, pike and perch catches. Whitefish is the only species which maintains a relatively stable catch throughout the year. Perhaps the most important point to note is that it is most advantageous, from the standpoint of revenue per pound, to market fish in the period from January to March. In the case of some species, (e.g. perch, pickerel, pike) a fisherman would receive up to twice as much per pound. In the case of whitefish, the fisherman would receive 50% more per pound or from 5¢ to 8¢ per pound more which should more than offset any additional real costs.

One of the major shortcomings of the fishing industry in C.D. 12 is in the marketing of the catch. Such problems as daily price fluctuations, and their small share of the final price result from the weak marketing position of the fishermen. It is a case of a large number of producers or sellers facing a small number of buyers, who in turn are themselves in a weak marketing position facing the export market. These problems are common to the freshwater fishing industry throughout the Prairie Provinces and the McIvor Commission was set up in 1965 to suggest solutions to these problems. The result of this inquiry was the suggestion that a marketing board be set up which would control supplies to the export market and thus provide a more stable and equitable pricing structure for the fishermen. At this time, the suggestions have not yet been implemented. [1]

Future Prospects

To estimate the future of the fishing industry in C.D. 12 is particularly difficult compared with other industries because of the cyclical nature of the catches of different species. By setting out some specific assumptions, an estimate can be derived which may give an insight into the readjustments necessary in view of specific goals.

On the basis of trend information, it can be postulated that the total weight of whitefish caught in 1976 will be approximately 1.5 million lb., very near the peak catch figure.

The tullibee catch will vary around the 2.5 million pound mark. Pickerel will account for perhaps 0.5 million pounds. The remaining species will account for perhaps 0.4 million pounds, bringing the average total catch to around 5.4 million pounds annually.

At the present prices 5.4 million sell for about $420,000. Past figures show that about 50% of the fish are caught in the summer and the rest in the winter. Establishing $3,500 as a minimum income criterion, there would be full time employment for a maximum of 120 men or the equivalent of that in part-time jobs. [2] This amounts to a catch of around 44,000 lb. of fish per year per man or man equivalent.

Increases in efficiency, should they occur, would reduce the number of employees required. Similarly, the desire for higher than minimum salaries will produce the same effect. Higher incomes tend to result in increased

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[1] By April,1969, a marketing board will likely be established.

[2] $3,500 gross income minus direct expenses of about $450 (for 44,000 lb.) brings net income to around the $3,000 mark.

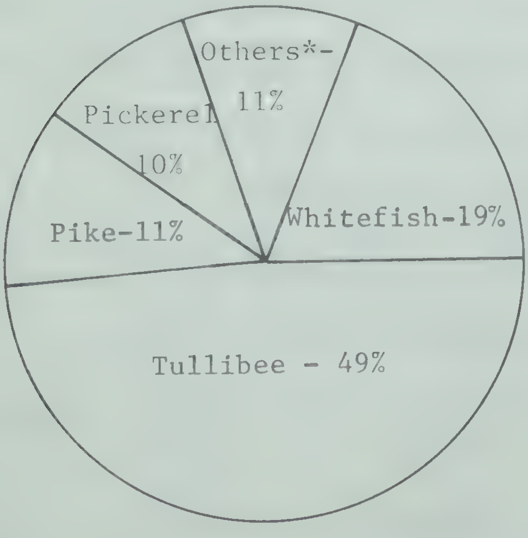
Alberta contributes the following portions to the total freshwater fish landings in Canada. [1]

(1) Pike	-	13%
(2) Whitefish	-	7%
(3) Pickerel	-	4%

With the Alberta catch forming such a small portion of the total, the price to Alberta fishermen is determined largely by the catch in the rest of Canada, - particularly in Manitoba, Saskatchewan and the Northwest Territories. Alberta fishermen are at the mercy of fish cycles, weather, and fish infestations. In addition they are affected by the scope of these problems in other provinces which produce fresh-water fish. [2]

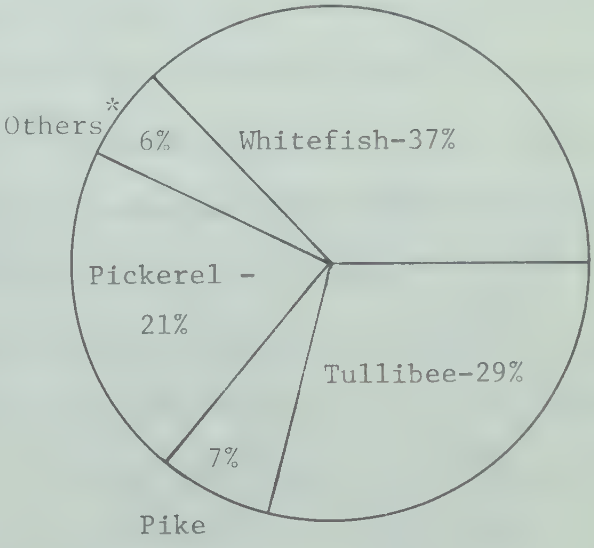
The two figures below clearly illustrate the relationship between total catch and the total revenue in C.D. 12 during the last six years:

Figure 36
DISTRIBUTION OF FISH CAUGHT IN C.D.12 BY SPECIES-1961-66



(100%=23,549,473 lb.)

Figure 37
DISTRIBUTION OF FISHERMEN'S EARNINGS IN C.D.12 BY SPECIES-1961-66



(100%=$1,803,454)

* Trout, Goldeyes, Perch, Suckers, Ling

productivity as well, through the use of better capital equipment. There should, therefore, be a trend toward fewer fishermen in any case. Other variables affecting employment in the same direction are fee increases and higher incidence of infestation in some of the more desirable species.

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[1] McIver Commission findings, Ottawa, 1966. p. 63 f.f.

[2] Saskatchewan, Manitoba, N.W.T. and Northern Ontario.

One particularly important point should be noted: The fishing industry in C.D. 12 is tied very closely to the fur industry through the mink feed link. At the present time, the fur industry, from a producers standpoint, is very depressed. In the short run, mink ranchers can hold out but a continuation in the present price trends to 1970 would likely signal the death of this industry. 1/ Should this happen there would be no market for the projected 2.5 million pounds of tullibee in 1976. Naturally this would have a devastating effect on the fishing industry.

Therefore, one readjustment necessary is to ensure that a fishing occupation as such could provide an adequate income for those so inclined. This may involve a form of quota system on the commercial lakes. Before any such measure is contemplated, alternate occupations for those presently involved to some degree in fishing, must be found. Obviously it would be premature to try to establish viable fisheries if no other income is available to those who might be displaced.

Another measure might be to encourage more fishing during the January to March season. Granted, weather conditions for winter fishing are severe, but it may be possible to provide some form of capital assistance to diminish the climatic problems.

1/ At the time of publication a number of smaller ranches were closing down and others were cutting back on their stock.

FUR TRAPPING IN C. D. 12

Northeastern Alberta has been an area of fur trapping activity since the late 1700's when Peter Pond established a trading post south of Lake Athabasca. More recently this occupation still provides income to many of the people in this northern corner of Alberta.

Muskrat, beaver, squirrel, ermine and mink account for most of the pelts taken in C.D. 12. Actual figures for value and volume of furs are very sketchy so reference is made below to an unpublished study of the Alberta fur industry for the 1964-65 season.

For this study, the province was broken down into 5 main areas according to geographic criteria. Census Division 12 is composed of the Athabasca and Lac La Biche areas which are not coterminous with the census division's boundaries. The Athabasca area is almost totally within the census division while a substantial portion of the Lac La Biche area is outside C.D. 12.

The table below presents the situation for the 1964-65 season:

Table 39 FUR PRODUCTION IN ATHABASCA AND LAC LA BICHE DISTRICTS [1/]

1964 - 65

	ATHABASCA		LAC LA BICHE	
Species	No. of Pelts	Value to Trapper	No. of Pelts	Value to Trapper
Beaver	4,090	$ 47,443	8,191	$ 94,609
Muskrat	75,551	92,634	20,102	24,323
Squirrel	49,896	27,442	164,606	90,544
Mink	2,666	36,763	1,159	15,983
Ermine	1,671	1,650	10,752	11,504
Totals		$206,275		$236,963

[1/] Data abstracted from records of Fish and Wildlife Branch, Alberta Department of Lands and Forests. (hitherto unpublished)

Furs amounting to a total of $443,238 were taken from these two districts during the 64-65 season. Since there were approximately 389 active licences [1] in the L.L.B. district and 223 in the Athabasca district, the average values of pelts per licence [2] was $610 and $925 respectively.

Table 40 FUR PRODUCTION IN C. D. 12 - 1964-65

	Athabasca	Lac La Biche	Total
Active Licences (No.)	223	389	612
Portion in C.D. 12 (No.) [3]	203	199	402
Average Value in Pelts ($)	925	610	
Total Value in Pelts in C.D. 12 ($)	187,775	121,391	309,166

Average Value Per Active Licence in C.D. 12 = $770

The number of licences in C.D. 12 was arrived at by locating each licence geographically and enumerating those in C.D. 12.

A further estimate of income distribution of fur trappers can be made. In 1965-66, there were approximately 452 trapping areas and 526 trappers. This differs from the active licence figure of 402 because a number of trapping area licences are taken out but no furs are ever trapped in that area. Similarly, the surplus of trappers over trapping areas occurs because more than one Indian or Metis is allowed to trap per trapping area. In 1965-66 there were 206 Indians in C.D. 12 who did some trapping and they held licences for 129 areas to account for an average of 1.6 trappers per area. Figures for 1966-67 show that the Indian population in C.D. 12

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[1] Active licence refers to that held by a trapper who had sold some fur during the season.

[2] Licences and trappers are not in a 1:1 ratio. More than one Indian and more than one Metis can trap in the same area.

[3] Abstracted from records of Fish & Wildlife Branch.

caught a total of $39,200 worth of furs which amounted to $180 per trapper. Assuming that this was the approximate value per trapper in the 1964-65 season as well, then the total take by Indian trappers amounted to approximately $37,080 in that year. This would leave about $272,086 (i.e. $309,166 - $37,080) to be caught by the other trappers in the area. This would increase their average catch from around $772 per active licence to somewhere in the neighborhood of $915 per active licence. It is to be expected that these estimates are very approximate, but they do indicate certain relative differences in income.

The above illustrates an important point and that is the difference between the catch taken by the Treaty Indians and that taken by other trappers. Information indicates that it is not too difficult to trap pelts worth over $3,000 particularly during the winter months. In fact there are trappers in Alberta making as much as $20,000 gross from 7 months of trapping. 1/

Estimates place the present total fur crop at less than 50% of the potential. 2/ Presently there is a significant waste of fur catch because during the winter, up to 75% of the desirable animals die from natural causes. Theoretically, all of these pelts could be taken in the fall or during the winter without upsetting the reproduction cycle. In addition, it is a natural phenomena that as the fur-bearing population begins to decrease, litters tend to grow larger to compensate for the imbalance. It appears that fur production could be increased to perhaps $600,000 and still remain within the realm of good conservation policy.

1/ Personal communication; Fish & Wildlife Branch, Alberta Department of Lands and Forests, private communication.

2/ Ibid

Figure 38 WILD FUR PRODUCTION IN ALBERTA FOR THE YEARS 1952 - 1967 1/

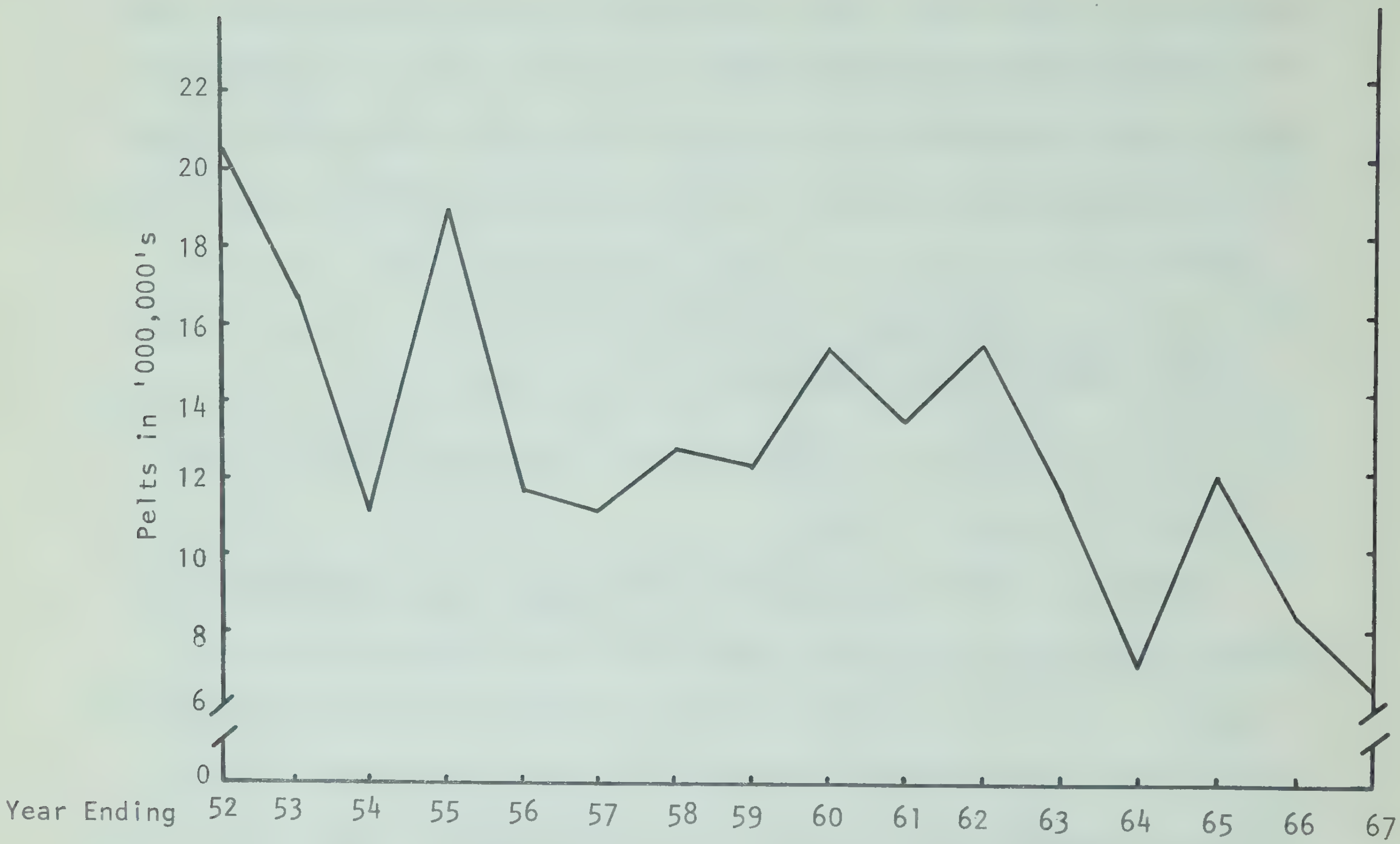
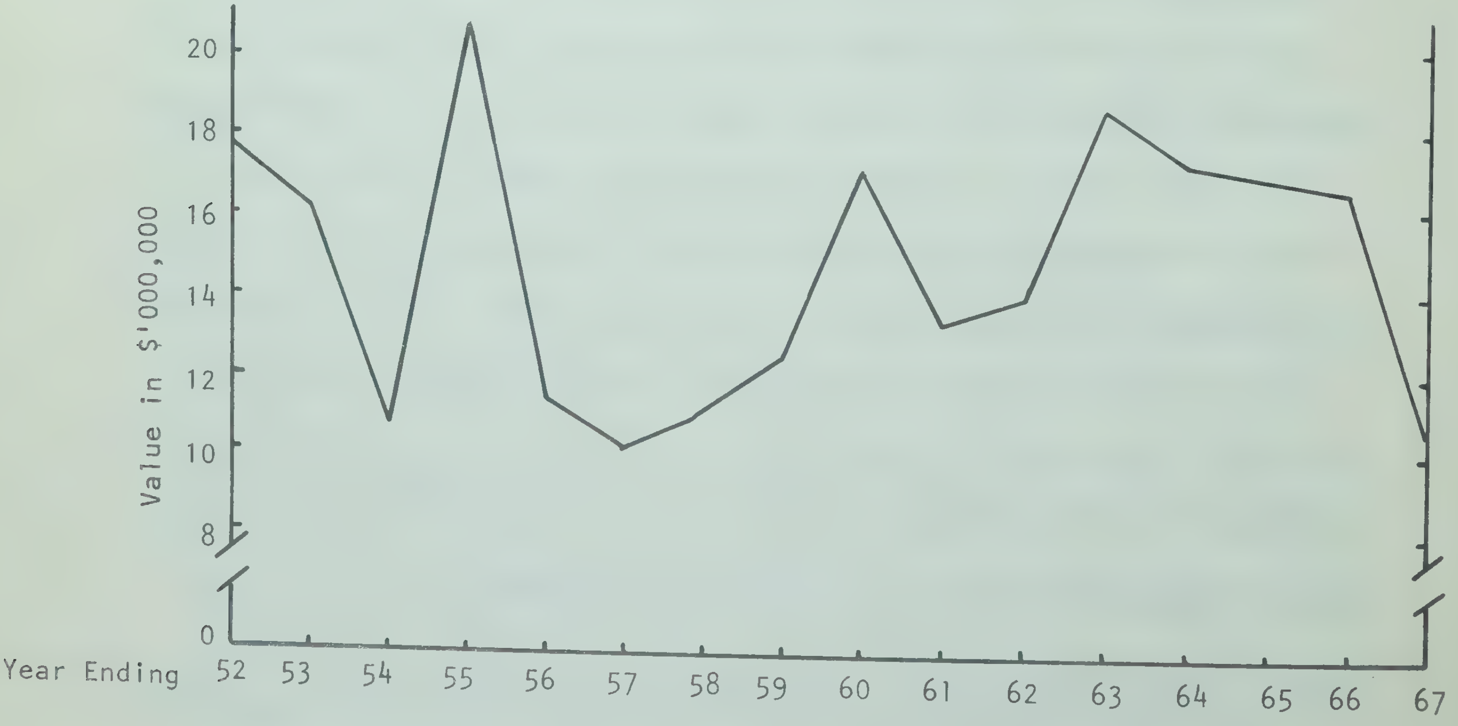


Figure 39 VALUE OF WILD FUR PRODUCTION IN ALBERTA FOR THE YEARS 1952 - 1967 2/



1/ Abstracted from records of Fish & Wildlife Branch and specially tabulated by Rural Development Research Branch.

2/ Ibid

Present Trends

Unfortunately, few regional statistics for the fur trapping industry are available. However, an observation of the past Alberta trends may provide an indication of what may be happening in C.D. 12.

The preceding figures illustrate the substantial decline in total pelts caught since 1952. The fur catch in 1966-67 amounted to slightly less than 1/3 of that caught in 1951-52. At the same time, revenue from the sale of these pelts did not decline proportionately. The figure of $1,040,000 in 1966-67 was 2/3 of 1951-52. Certainly part of this decline had to occur in C.D. 12, so we can conclude that total fur trapping activity had decreased during the past 10 to 15 years.

If the above trend continues, what was once a fairly important industry to Alberta and C.D. 12 will gradually die out. Perhaps other more profitable and/or less severe occupations are attracting people who at one time would have trapped. It has also been claimed that welfare policies have diminished the incentive to trap, particularly among the Indians and Metis. From the figures presented earlier, it would appear that this holds true, at least for the Indians, for they only realized an average of $180 per trapper in 1966-67. However, there are still individual Indians who are making much more than this amount.

It would appear that a good income potential is available in this industry and that with a certain amount of educational inputs a number of people could have viable employment. One beneficial program would be to emphasize the importance of trapping when the animals have their best pelts (i.e. during the fall and winter). Another would be to educate many of the trappers to the best ways of presenting the pelts to the market. A third might be some kind of pooling of pelts for fur sales or other marketing schemes. A fourth suggestion is to ensure that the population of animals in a trapping area is sufficient to realize a certain minimum income. Provisions should be made for ensuring that the areas are used to the best advantage. Obviously, one of the reasons for the low catch is the extremely cold weather during the winter. It may be possible with certain capital inputs and/or organizational methods to improve the living and working conditions of the trappers in the woods. It should be noted that the Department of Lands and Forests have undertaken to provide much of the above information to trappers. However, it appears that a more intensive plan is required to meet the present and future needs of the fur industry.

OIL, GAS, MINERALS, MINES, QUARRIES AND OIL WELLS

In the past few years, relatively minor activity has been carried on in drilling for gas and oil. For example, in 1961 approximately 59 wells were drilled. Of these, none found oil, but 16 gas finds were recorded. Fifty seven of the wells drilled were located south of a line drawn through Heart Lake or more precisely, south of township 70. By 1966 drilling activity was about the same but the centre of interest had shifted. In that year, 52 wells were drilled; 3 found gas while the rest were abandoned. The emphasis shifted to more northerly exploration with 37 of the 52 wells located above township 70 to as far north as Bitumont or township 97.

As of December 21, 1966, there were 14 designated gas fields and 1 oil field in C.D. 12. The only use for the gas in these fields is to supply local utilities or in certain locations, local industries. No gas or oil (from wells) is exported from the region, although at the time of publication, a gas pipeline was being constructed from the Lac La Biche field to McMurray to supply the Great Canadian Oil Sands plant. Employment effects on the local economy from this segment of the industry are very small, limited mainly to opportunities in construction and transportation.

Oil will play an increasingly significant role in the census division, but this influence will come from a completely different type of oil exploration. This refers, of course, to the development of the Athabasca Tar Sands in C.D. 12.

The Tar Sands are immense deposits of oil-impregnated sands which cover about 6 million acres of land in the central part of C.D. 12. Total reserves of oil in this deposit is estimated to be 626 billion barrels.

Trend Influences

Perhaps more than any other commodity produced in Alberta, oil is dependent on export markets and, to a large degree, the American market. Alberta presently exports about 450,000 barrels per day of crude oil. The Canadian Petroleum Association estimates that demand for crude oil in the eastern states will increase by 100,000 barrels per day (annual average). Since Alberta is the only province with substantial reserves, it is to be expected that additional exports will be realized. More immediately, a pipeline is being constructed which will likely supply the Chicago market with from 100,000 to 150,000 barrels per day. 1/ With the upheaval in the Middle East in 1967 and the resulting disruptions of oil shipments, American purchasers are looking more closely at the stable supply from Canada and Alberta in particular. It would appear that Alberta can look forward to increased production and exports to 1976 and beyond.

With the increasing American, British and Japanese interest in Alberta oil, it is assured that total crude production will rise. Furthermore, the province desires to maintain its technological lead over oil-from-shale and oil-from-coal developments in the United States. It is likely that this will weigh in favor of at least one more oil recovery plant being built in C.D. 12 before 1976. Employment would likely involve some 1300 people which would mean an increase in population of from 3000 to 4000 plus the addition of people employed in the service industries for a total of about 5000 people.

Officials of the Great Canadian Oil Sands plant have suggested that a vanadium recovery plant is a possible and desirable extention of their operations. Other officials in the chemical products industry have noted

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1/ At publication, arrangements had not been finalized in U.S.A.

that the crude from the sands is very suitable as raw materials for the chemical industry. The proximity of the Edmonton refineries and the existing pipeline discourage, to some degree, any agglomerative effects around McMurray. However, government policy to encourage industry in the less developed areas of Alberta combined with the Federal Area Development Incentives Act may favor further industrial developments in the area. In addition, once a certain level of population is reached, services become better developed. This variable is an important one in the locational decisions of firms. That is, the more services offered in any area, the more attractive is the area for firms looking for new plant sites. This will be particularly important to firms which use one of the outputs from the oil sands production but have a choice as to whether to build the plant 'at the market' or 'at the resource'.

The other major mining operation in C.D. 12 is the Canada Salt Plant at Lindbergh. Modern facilities have been constructed and it is anticipated that employment will gradually rise. However, it is not expected that any large employment increases will result either from new plants or substantial capacity increases in the present one.

Another possibility for development in C.D. 12 is peat moss mining. There are hundreds of thousands of acres of peat bogs in C.D. 12. However, only peat with certain chemical and physical characteristics is suitable for mining. Engineering feasibility surveys must be done to determine the quality of the deposits. Similarly, experienced managers, financing arrangements and marketing facilities are required before any development is possible.

Perhaps the most important development opportunity is the gypsum deposits in Wood Buffalo Park. Here, an estimated 1 billion tons of gypsum are located. Considering that gypsum presently sells for close to $3.00

per ton, there would appear to be a good incentive to development. However, two drawbacks are apparent. The first is that mining is prohibited in National parks and the second is the standard problem in C.D. 12: transportation. Rail access would be one requirement for exploitation of this resource even if the 'parks problem' were to be overcome. At the present time, the Alberta Government is attempting to work out arrangements with the Federal Government which would allow possible development of these deposits.

Deposits of other minerals have been known about for years. These occur in the extreme northeast corner of the census division in the area bordered by the Slave River and a diagonal line joining the eastern tip of Lake Athabasca to the Clearwater River where it crosses the Alberta-Saskatchewan border. This area, the western edge of the Precambrian Shield, has been explored sporatically since the 1920's. As early as 1934, gold was mined on the north shore of Lake Athabasca, in Saskatchewan. Uranium exploration began after 1947 and resulted in many small discoveries which apparently were not worth developing at the time nor since. In 1957, additional showings of molybdenite, nickel, silver and uranium were found. It is interesting to note that a huge lead-zinc complex has been constructed at Pine Pint, N.W.T., and that a large uranium mining and refining complex exists in Saskatchewan, east of Lake Athabasca. Yet no mineral development has been undertaken in the Alberta section, which is an extension of the same geological structure. Further exploration, and in particular, drilling exploration might, in the future, unearth some economic reserves. Perhaps a useful idea would be to develop some additional forms of incentive policy to encourage more exhaustive exploration in this particular area. While it may not be particularly desirable for government to enter the field of physical resource exploitation directly, it may be a requirement for development of resources in this area.

Another mineral which should be mentioned is sulphur. As well as the sulphur extraction carried on at the G.C.O.S. plant in McMurray, there are signs that some types of sulphur ore exist in northern Alberta. Fifty sulphur exploration permits have been taken out in the past year. While most of these permit areas lie to the west of C.D. 12, (i.e. in C.D. 15) some border on the former. One reason that more permits have not been taken out in C.D. 12, is that the area of interest borders on Wood Buffalo Park and since mining operations would be prohibited there, little if any, exploration has gone on in the park.

Employment in Mining

Employment impacts will be most heavily felt in this industry, and this will be entirely due to the production from the Tar Sands. Assuming that at least 1,450 new jobs will be created in the mining industry, excellent opportunities exist for labour resource transfers to this area. Of course, many of the jobs in this industry require special skills which require specialized training such as university, trade school or apprentice programs, and therefore many of the jobs will be filled by in-migration. But, there will still be many opportunities for semi-skilled or unskilled workers, many of which could come directly from C.D. 12. One recommendation might be to phase development of the human resources with that of the physical resource. In other words, once concrete plans have been approved for the construction of a new plant, an education program should begin to train underemployed or unemployed people in C.D. 12 with skills which are required at the plant. In this way, the company would obtain the employees they require and people in the area would receive higher incomes. If a program such as this is not followed, most of the positions may be filled from outside the region. If this happens, per capita incomes will rise in total but the income distribution will still show a disproportionate number in the low income subdivisions. Of course, there are cultural, locational, social and physical constraints on how many of the people in C.D. 12 could be trained for the new jobs. However, a concentrated effort involving the people, education authorities, industry, and government must be made to provide the labour mobility necessary for increasing per capita income and providing a more desirable distribution of income.

Given the increased employment in this industry, we can expect an expansion in the residentary or service industries which supply goods and services to the employees in the mining sector. Using the assumed employment multiplier in C.D. 12, the creation of 1,450 new jobs in the mining industry would result in an additional 1,060 jobs in the residentary industry. 1/ This provides more opportunities for employment for the people in C.D. 12 if labor mobility is encouraged.

1/ $\frac{\text{Export Employment}}{\text{Import Employment}} = 1.37$

RECREATION AND TOURISM

C.D. 12 has excellent potential for development of a recreation and tourism industry. The area is well endowed with numerous lakes and many excellent beaches most of which have yet to be developed. The lakes are expected to be used more extensively and intensively in the decade ahead for swimming, boating, fishing, cabin development, water skiing, and other water based activities. A map showing the Class 1 and Class 11 shorelines of some of the lakes is attached. (Page 1).

It is impossible to document the economic impact that possible recreation and tourism developments will have on C.D. 12. Data is inadequate and in many cases, non-existent, on many activities especially on the census division basis. Assuming that visitors to C.D. 12 spend the same amount of money as they do on the provincial basis, each party brings into the area, approximately $100. A survey conducted for the province in 1965 revealed the following breakdown of expenditures:[1/]

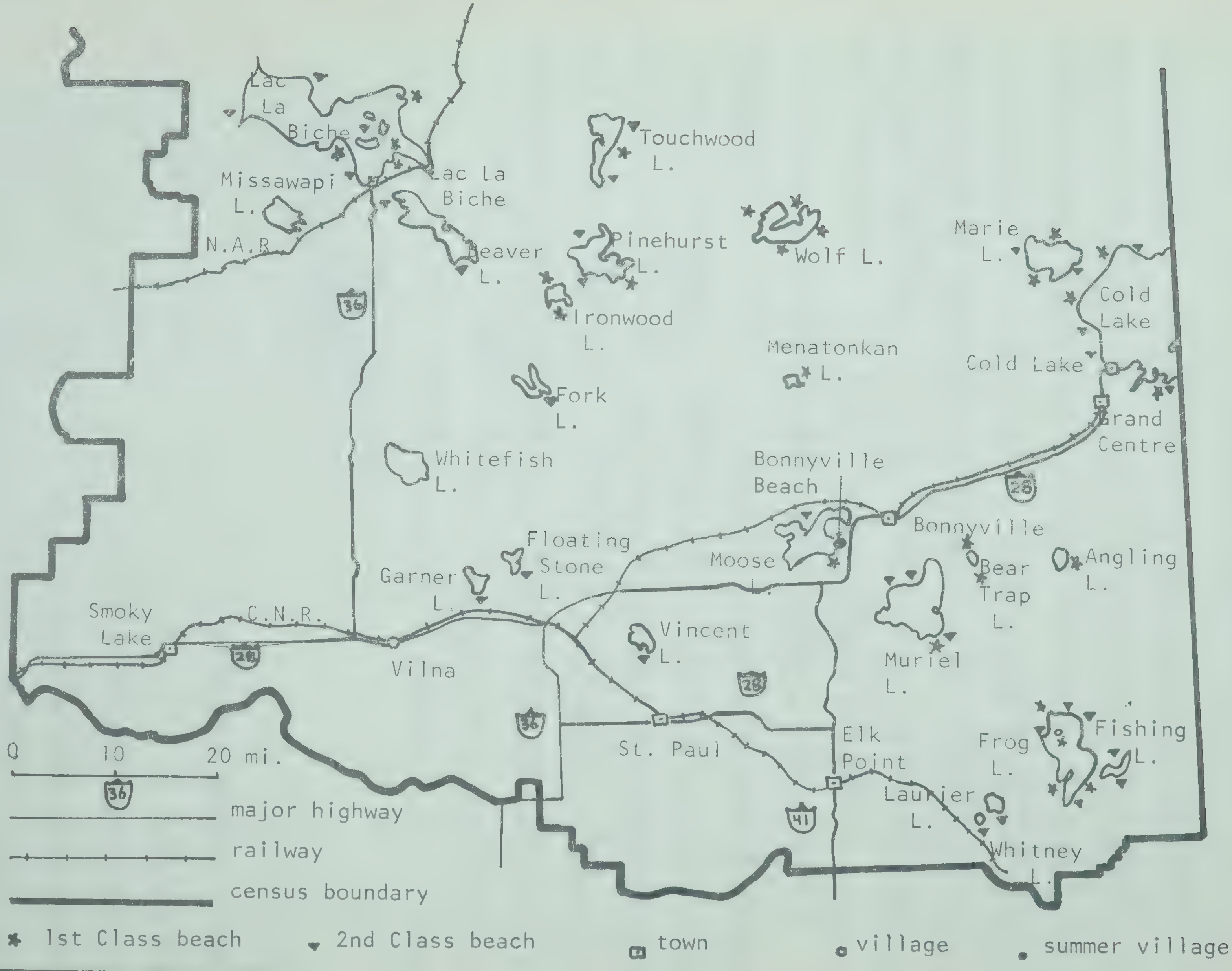
Table 41 EXPENDITURE BREAKDOWN OF ALBERTA VISITORS

	Total Expenditures Per Party	Per Cent of Total
Lodging	$23.00	20.7
Groceries, meals, refreshments	27.00	28.5
Auto expenses	25.00	20.2
Non-auto transportation	10.00	2.2
Recreation and entertainment	10.00	10.6
Other goods and services	17.00	17.8+
TOTAL	$98.00	100.0

[1/] Alberta Department of Industry and Development; Alberta Accommodations Visitors Survey, Alberta Government Travel Bureau, Edmonton, 1965.

Figure 40

FIRST & SECOND CLASS BEACHES - C.D. 12 1/*
(Southern Portion)



1/ Map by Alberta Department of Municipal Affairs: Map compiled by Rural Development Branch from Canada Land-Inventory - Recreation Capability Maps.
*(Locations are approximate. Space limitations are such that all beaches could not be included.)

W.R. Meeks [1] estimated the revenue from non-resident tourists in C.D. 12 at $400,000. In addition, Alberta residents spend money for use of recreation facilities in the area.

Other recreation and tourist attractions include: [2]

1. Golf courses - six

   (Bonnyville, Elk Point, Lac La Biche, St. Paul, Vilna, and Cold Lake RCAF Station)

2. Historic Sites

   Frog Lake - 'Frog Lake Massacre'

   Winnipeg Trail - intersection of Highway 36 and 28.

   Moose Lake - first trading post - 1789

   Buckingham House, Fort Chipewyan, Fort White Earth - are all trading posts of Hudson's Bay and Northwest Companies.

3. Accommodations include 26 hotels with 526 rooms; 15 motels with 200 rooms, and 4 trailer courts with accommodations for 220 units.

4. Campsites and Recreation Areas

   35 - Alberta Highways campsites

   4 - Forest Service recreation areas

5. Resorts as listed by the Alberta Beach Managers Association include: Beaver Lake, Cone Beach (Mann Lake), Owl River Resort, and Whitefish Resort. Resorts provide facilities such as cabins, boats, fishing equipment, and other supplies. Gristhaven Fishing Lodge, 75 miles north of the town of Cold Lake, offers fishing and hunting accommodations, but is accessible only by air.

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[1] Meeks W.R.; Recreation and Tourism, Rural Development Research Branch, Alberta Department of Agriculture, Edmonton, July 1967. p.23.

[2] Ibid pp. 6-7.

6. Parks

a) Wood Buffalo National Park occupies 15,000 square miles and is located in the northern portion of the area. It contains the world's largest buffalo herd (11,000).

b) In addition, parks are located at Garner Lake, north of Spedden; Long Lake, north of Waskatenau; and Lac La Biche (Winston Churchill Park). These parks contain picnic shelters, tables, water supplies, firewood and stoves, and toilet facilities. In 1964, Garner Lake had 41,000 visitors, Long Lake 39,000; figures for Churchill Park were not available. In 1967, Garner Lake had 48,000 visitors.

Recreation and tourism potential in C.D. 12 is bright. The industry, if developed, could yield and annual regional product of five million dollars or more by 1976.

MANUFACTURING

At the present time manufacturing accounts for relatively little of the total production in C.D. 12. Only about 114 people were employed in 1965 in this sector. At the present time, almost all of the firms produce food or beverages. Only 4 out of 22 establishments produce other products. Most of the manufacturing is locally oriented with the products - bakery, cement, newspapers, furniture, feed - sold in the immediate market. The only major exporters of products from the area are the creameries which ship most of their produce to Edmonton.

There will, no doubt, be a certain amount of growth in the manufacturing industries due to the gradually increasing population. These would be oriented to production for the local market. A growth in such agricultural business firms as feed mills can be expected on the basis of the projected livestock increases.

The trend in the dairy products industry is to fewer smaller town creameries and centralized regional operations. By 1976, we can probably expect to see perhaps two or three butter plants in all of C.D. 12 compared with the present five. However, total employment would likely remain about the same.

The sparse population does not allow any large market-based manufacturing plants to be established. Apparently, the main opportunity for increased manufacturing activity would result from a firm requiring resources from the area. These possibilities would include such products as wooden furniture, and other wood specialties particle board and chemicals. McMurray has perhaps the best chance for any new manufacturing plants since ample petroleum and other raw materials are available in the one area.

However, even in this abundantly endowed area, it is likely that governmental incentive measures would have to be formulated to produce any immediate results.

There are, of course, any number of footloose manufacturing firms that could establish in the area and these are perhaps best attracted by concerted publicity campaigns undertaken by such organizations as the Chambers of Commerce. It might be a good policy to pool most of the available regional resources to attempt to attract industries into the region in general and not to specific locations.

Outlook

The outlook for 1976 is that manufacturing activity will grow very little. However, such establishments as feed mills and perhaps slaughtering houses could be expected to begin production or expand their production. The one major question mark is the effect of the Tar Sands development in McMurray and whether industries will tend to concentrate in that area.

MIGRATION AND MOBILITY OF FARM POPULATION

IN C.D. 12

Census Division 12 is an area of low income and few opportunities for an expansion in demand for labour (with the exception of the Fort McMurray area). Although the area had an increase in population between 1956 and 1961, there was actually a net out-migration of 4,000 persons during this period. (See Svenson, K.A.; Population Characteristics, C. D. 12, Rural Development Research Branch, Economics Division, Alberta Department of Agriculture, 1966, p. 10). Many studies have been conducted to determine factors which influence the rates and direction of migration. The following generalizations can be made from these studies:

1. Areas of low level of living tend to be areas of net out-migration. (See C. Gooderich et al; Migration and Economic Opportunity, University of Pennsylvania Press, Philadelphia, 1936).

2. The number of persons going a given distance is directly proportional to the number of opportunities at that distance and inversely proportional to the number of intervening opportunities. (S. A. Stouffer; "Intervening Opportunities: A Theory Relating Mobility and Distance", American Sociological Review, Vol. V, pp. 845-867).

3. Rates of net migration between two areas tend to be directly proportional to the difference in level of living and inversely proportional to the distance between them. (See J. Folger; "Some Aspects of Migration in the Tennessee Valley", American Sociological Review, Vol. XVII, pp. 253-260 and A. R. Mangus and R. L. McNamara; Levels of Living and Population Movements in Rural Areas in Ohio, 1939-1940).

4. The size, direction, and net effect of migration streams are highly sensitive to social and economic changes occurring in the community of origin and the community of destination. (See D. J. Bogue, et al; Subregional Migration in the United States, Oxford, Ohio, Scripps Foundation, Miami University, 1957).

Migration also tends to be selective according to age as illustrated by the fact that the number of people between the ages of 20 and 35 actually decreased between 1956 and 1961 in C.D. 12 while the total population of the area increased. (op cit - Population Characteristics, p. 35).

Objectives

Since C.D. 12 is designated a low-income area, and it has, in the past, been an area of net out-migration, the question that arises is: Where these migrants go? If most of the migrants are young people (as the data mentioned above indicates), then the destination of migrants may have some effect on the type of programs undertaken in schools. If most migrants go to farms outside the area, then it may be advantageous to teach agriculture as part of a high school vocational program, but if most of them go to cities, then some other program may be more appropriate.

One of the programs proposed to increase incomes in C.D. 12 is a farm enlargement and consolidation program. Farm enlargement (unless the land base is enlarged) means fewer farmers so some farmers will have to leave the farm. This brings up the following questions:

1. Are there any farmers who are planning to leave the farm now?

2. Are there any farmers who would be interested in other jobs if the opportunity were available?

3. What are the characteristics of farmers who are interested in

leaving the farm in terms of age, education and job interests?

The two major questions which will be discussed are:

1. What are the destinations of migrants leaving C.D. 12?

2. How many farmers are interested in leaving the farm and what are their characteristics in terms of age, education and job preference?

Sources of data

The Rural Development Research Branch conducted an interview survey of 247 randomly selected farmers in C.D. 12 during the summer and fall of 1966. This survey included questions on age, education, family characteristics, income, aspects and attitudes, etc. The data was analyzed through the use of the computer and most of the statistics which follow are derived from this study.

Procedures

The data available from the survey does not give a total picture of the destinations of all people leaving C.D. 12. The question asked in the survey was where the adult children of farm operators were living. Answers to this question do not include those people who had been farm operators, but who left to farm in other areas or for other occupations. This method also eliminates children of people living in towns and villages who are not farm operators. These qualifications limit the application of the results to children of farm operators in C.D. 12.

The answers to the question concerning location of migrant children were coded in the following categories:

1. City (in all but a few cases the city was Edmonton).
2. Town outside C.D. 12.
3. Town in C.D. 12.
4. Farm outside of C.D. 12.
5. Farm in C.D. 12.

There were several complications in the coding because there was only one response allowed for each operator. These problems and their solutions are as follows:

1. If an operator had more than one migrant child, then the most frequent class of destination was selected.

2. If the destinations were divided equally, then the most frequent male destination was selected because the male is generally considered the primary wage earner in any family unit.

Data from this question will, in a limited way, answer the question as to where migrants go when they leave C.D. 12.

In order to determine interest in leaving the farm, several related questions were asked. The subjects of these questions are as follows:

1. Interest in non-farm employment.
2. Type of work preferred.
3. Plans to leave the farm.
4. Plans to sell the farm in the next five years.

An additional related question concerning the availability of off-farm employment was asked to determine the farm operators' subjective judgement of alternative employment.

Results: Destinations of Migrant Children

The question regarding the destinations of migrant children was not applicable to 64.5% of the farm operators interviewed. These respondents may not have been married or may not have had children who had left home. There were 88 respondents who answered the question and of these 62.5% indicated that a city (most frequently Edmonton) was the place of residence of most of their migrant children. (See Table 54.) The next most frequent destination was a town in C.D. 12 (28.4%) followed by towns outside C.D. 12 (5.7%) and a farm in C.D. 12 (3.4%). There were no respondents who indicated that most of their children who had left home had moved to a farm outside of C.D. 12.

The responses were also broken down by district and categorized on the basis of whether the migrant children remained in C.D. 12 or left the area. (See Table 54.) In the Bonnyville district comparatively more children remained in C.D. 12 than in any other district followed by St. Paul and Lac La Biche with the Smoky Lake district having the highest proportion of the migrant children leaving C.D. 12. When all of the districts are compared together, the difference is significant (according to a x^2 test) at the 20% level. When the Bonnyville district is compared independently with each of the other districts, the difference between Bonnyville and Smoky Lake is significant at the 5% level (See Table 50.) The difference between Bonnyville and Lac La Biche is significant at the 10% level (See Table 51) and there is no significant difference between Bonnyville and St. Paul. (See Table 52.)

In answer to the question concerning interest in non-farm employment, 52.2% of the sample respondents said they were not interested and 39.3% indicated some interest. The rest of the respondents did not answer the question. The St. Paul area farmers were most favourable to off-farm employment followed by Bonnyville, Smoky Lake and Lac La Biche in that order. (See Table 54.)

Despite the fact that 39% of the operators expressed interest in non-farm jobs, 77.3% indicated that they preferred farm work to any other type of work (See Table 55.) In some cases this preference for farm work may be the result of familiarity with farming and uncertainty about what is available in other types of work. However, many of the farm operators have had off-farm work experience. This high proportion having a preference for farming may also be a realistic assessment of alternatives available at their level of education and training as well as a personal preference and not a comparison with all other alternatives.

The sample respondents were also asked if they had any plans to leave the farm and if they planned to sell their farm in the next five years. These questions were asked in widely separated parts of the questionnaire as a check on the consistency of the response. The respondents answered yes to the first question in 21% of the interviews and yes to the second question in 26% of the interviews. (See Tables 56 and 57.)

There is an indicator of the perception of farm operators regarding the availability of off-farm employment alternatives. When asked if off-farm employment was available, 34.4% of the operators answered yes. Lac La Biche had the highest proportion of yes answers followed by Smoky Lake, St. Paul and Bonnyville, in that order. (See Table 58.)

If a program is to be designed to assist farm operators expressing an interest in leaving the farm, then the characteristics of those who are leaving must be determined. In order to do this, those operators who expressed an interest in non-farm employment were tabulated by age, education and work preference, and those planning to sell the farm in the next five years were tabulated by age, education, size of farm and gross farm income. The results of these tabulations are found in Tables

There were 97 farm operators (39% of the total of 247) who expressed an interest in non-farm employment. Sixty-five (67.1%) of these farm operators had grade eight education or less and 38 (39%) were over 50 years of age. (See Table 53.) If it is assumed that those who are under 50 years of age and have more than grade eight education are able to move into retraining programs fairly readily, then [illegible]

Table 42 C.D. 12 FARM OPERATORS WITH LESS THAN GRADE 5 EDUCATION 1/ INTERESTED IN NON-FARM EMPLOYMENT BY AGE AND WORK PREFERENCE

	Age											
	20-29		30-39		40-49		50-59		60+		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
Blank	0	0.0	0	0.0	0	0.0	0	0.0	3	42.9	3	27.3
Farm	0	0.0	0	0.0	0	0.0	4	100.0	3	42.9	7	63.6
Skilled	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Unskilled	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Office	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Other	0	0.0	0	0.0	0	0.0	0	0.0	1	14.2	1	9.1
TOTAL	0	0.0	0	0.0	0	0.0	4	100.0	7	100.0	11	100.0

Table 43 C.D. 12 FARM OPERATORS WITH GRADE 5-8 EDUCATION 2/ WHO ARE INTERESTED IN NON-FARM EMPLOYMENT BY AGE AND WORK PREFERENCE

	20-29		30-39		40-49		50-59		60+		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
Blank	0	0.0	3	5.6	2	3.7	1	1.9	1	1.9	7	12.9
Farm	1	1.9	7	12.9	13	24.1	14	25.9	3	5.6	38	70.4
Skilled	1	1.8	0	0.0	0	0.0	1	1.8	0	0.0	2	3.7
Unskilled	0	0.0	2	3.7	1	1.9	0	0.0	0	0.0	3	5.6
Office	0	0.0	0	0.0	1	1.8	0	0.0	1	1.8	2	3.7
Other	0	0.0	0	0.0	2	3.7	0	0.0	0	0.0	2	3.7
TOTAL	2	3.7	12	22.2	19	35.2	16	29.6	5	9.3	54	100.0

1/ Results of survey conducted by Rural Development Research Branch.

2/ Ibid

of these operators who can move into retraining. There are another 33 farm operators (34%) who are under 50 years of age but will need some upgrading (usually less than three grade levels) before they reach a grade level which will allow them entrance into other retraining programs. (See Table 44.)

There were 11 farm operators (11% of the 97) who had less than grade five education and all of these were over 50 years of age. Seven of these operators preferred farm work. Fifty-four (56%) of the operators had grades 5-8 and 21 of these were over 50 years of age. Seventeen of the 21 farm operators over 50 years of age preferred farm work. There were a total of 32 farm operators with more than grade eight education who were interested in non-farm employment. Six of these operators are over 50 years of age and 26 are under 50 years of age. Twenty of these 26 farm operators would prefer to farm. (See Tables 42 through 45.)

Table 44 C.D. 12 FARM OPERATORS 1/

INTERESTED IN NON-FARM EMPLOYMENT

BY AGE AND EDUCATION

Education	Age											
	20-29		30-39		40-49		50-59		60+		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
4 or less	0	0.0	0	0.0	0	0.0	4	18.2	7	43.8	11	11.3
5 - 8	2	33.3	12	50.0	19	65.5	16	72.7	5	31.3	54	55.8
9	0	0.0	4	16.7	7	24.1	2	9.1	1	6.2	14	14.4
10	2	33.3	2	8.3	0	0.0	0	0.0	2	12.5	6	6.2
11	1	16.7	4	16.7	2	6.9	2	0.0	0	0.0	7	7.2
12	1	16.7	2	8.3	1	3.4	0	0.0	0	0.0	4	4.1
Over 12	0	0.0	0	0.0	0	0.0	0	0.0	1	6.2	1	1.0
TOTAL	6	100.0	24	100.0	29	100.0	22	100.0	16	100.0	97	100.0

1/ Results of survey conducted by Rural Development Research Branch.

Table 45 C.D. 12 FARM OPERATORS WITH MORE THAN GRADE 8 EDUCATION [1/]
WHO ARE INTERESTED IN NON-FARM EMPLOYMENT
BY AGE AND WORK PREFERENCE

	Age											
	20-29		30-39		40-49		50-59		60+		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
No Answer	1	25.0	1	8.3	0	0.0	0	6.0	4	100.0	6	18.8
Farm	2	50.0	9	75.0	9	90.0	2	100.0	0	0.0	22	68.7
Skilled	1	25.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.1
Unskilled	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Office	0	0.0	0	0.0	1	10.0	0	0.0	0	0.0	1	3.1
Other	0	0.0	2	16.7	0	0.0	0	0.0	0	0.0	2	6.3
TOTAL	4	100.0	12	100.0	10	100.0	2	100.0	4	100.0	32	100.0

Sixty-four (26%) of the farm operators stated that they had plans to sell the farm. Sixty-four percent of these operators were over 50 years of age and 51.5% of those over 50 years of age, had less than grade eight education. Only 6.3% of the operators who had plans to sell their farms were under 50 years of age and had more than grade eight education. (See Table 46 for details.) Table 46 also shows that 39% of these farm operators were over 60 years of age.

An additional problem that arises in planning is to determine the extent of the need of programs to supplement adjustment. If farmers have the financial means to make their own adjustments, then there is no need of supplementary programs. Table 47 shows that 61% of the farmers with

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[1/] Results of survey conducted by Rural Development Research Branch.

plans to sell the farm have less than $3,750 in gross farm income. On the other hand, 15.6% have more than $7,500 in gross farm income. Table 48 shows that 73% of these farm operators own less than 400 acres of land. There is no one who owns more than 900 acres who has plans to sell.

Table 46 C.D. 12 FARM OPERATORS WHO INTEND TO SELL THEIR FARMS [1/]
BY AGE AND EDUCATION

Education	Age											
	20-29		30-39		40-49		50-59		60+		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
Less Than 5	0	0.0	0	0.0	0	0.0	3	4.7	10	15.6	13	20.3
5 - 8	2	3.1	8	12.5	9	14.0	12	18.7	8	12.5	39	60.9
9	0	0.0	2	3.1	1	1.6	1	1.6	3	4.7	7	10.9
10	0	0.0	0	0.0	0	0.0	0	0.0	2	3.1	2	3.1
11	0	0.0	0	0.0	1	1.6	0	0.0	0	0.0	1	1.6
12	0	0.0	0	0.0	0	0.0	0	0.0	1	1.6	1	1.6
Over 12	0	0.0	0	0.0	0	0.0	0	0.0	1	1.6	1	1.6
TOTAL	2	3.1	10	15.6	11	17.2	16	25.0	25	39.1	64	100.0

[1/] Results of survey conducted by Rural Development Research Branch.

Table 47 C.D. 12 FARM OPERATORS WHO HAVE PLANS TO SELL THEIR FARMS 1/
BY GROSS FARM INCOME

	Farmers		Cumulative	
	#	%	#	%
Under $250	5	7.8	5	7.8
$ 250 - 1,199	9	14.1	14	21.9
1,200 - 2,499	17	26.5	31	48.4
2,500 - 3,749	8	12.5	39	60.9
3,750 - 4,999	9	14.1	48	75.0
5,000 - 7,499	6	9.4	54	84.4
7,500 - 9,999	7	10.9	61	95.3
10,000 and up	3	4.7	64	100.0
TOTAL	64	100.0		

Table 48 FARMERS PLANNING TO SELL THEIR FARMS IN THE NEXT FIVE YEARS 2/
BY SIZE OF FARM (TOTAL ACRES OWNED)

Farm Size	#	%	Cumulative %
Under 100 Acres	1	1.6	1.6
100 - 199	13	20.3	21.9
200 - 299	8	12.5	34.4
300 - 399	25	39.0	73.4
400 - 499	10	15.6	89.0
500 - 599	0	0.0	89.0
600 - 699	4	6.3	95.3
700 - 799	2	3.1	98.4
800 - 899	1	1.6	100.0
TOTAL	64	100.0	

1/ Results of survey conducted by Rural Development Research Branch.

2/ Ibid

Summary

Studies of migration have shown that the rates and distances which people migrate are influenced by differences in levels of living, available opportunities, distance, intervening opportunities, social and economic changes and that migration tends to take place more rapidly among those between their late teens and early thirties. Since C.D. 12 is an area of low income, it could be expected to be an area of out-migration. Census data supports this conclusion. This study was undertaken to determine the destinations of those who migrate and the possible quantity of out-migration among farm operators in the future. The destination of migrants was measured using the most frequent destination of migrant children of farm operators. The future migration of farm operators was measured by using answers to questions about plans of farm operators to sell or leave the farm and interest in a non-farm job. The age and education characteristics of possible migrant farm operators were also explored. The following results were obtained:

1. Sixty-two point five percent of farm operators having migrant children listed a city as the most frequent destination.
2. Twenty-eight point four percent listed a town in C.D. 12.
3. Five point seven percent listed a town outside C.D. 12.
4. Three point four percent listed a farm in C.D. 12.
5. Thirty-nine point three percent of the farm operators were interested in non-farm employment.
6. Seventy-seven point three percent of the operators preferred farm work.
7. Twenty-one percent had some plans to leave the farm.
8. Twenty-six percent had plans to sell the farm.

9. Thirty-four point four percent said that off-farm employment was available.

10. Twenty-seven percent of the operators interested in non-farm employment are under 50 years of age and have more than grade 8 education.

11. Thirty-four percent of the operators interested in non-farm employment are under 50 years of age but have less than grade 9 education.

12. Sixty-four percent of the operators who had plans to sell the farm were over 50 years of age and 39.0% were over 60 years of age.

13. Six point three percent of the operators who had plans to sell the farm were under 50 years of age and had more than grade 8 education.

14. Twenty-nine percent of the operators who had plans to sell the farm were under 50 years of age but had less than grade 9 education.

15. Sixty-one percent of the farmers who plan to sell the farm had less than $3,750 in gross farm income in the year of the survey.

Conclusions

The fact that the most frequent destination of migrant children is a city, namely Edmonton, has many implications, especially for the educational system. Since most of the students obtaining an education in rural areas will have to compete with people trained in a city for city jobs; the education in rural areas must be oriented to prepare the majority of students for urban living. All of the areas surveyed indicated that the majority of their migrant children left C.D. 12. However, the people of the Smoky Lake area had significantly more of their migrant children leaving C.D. 12 than did the Bonnyville area. This is what would be expected from the results of other research which indicate that as distance decreases, the rate of migration increases. One of the migration possibilities which is not given in the results of the survey is that people may leave home to work in a town in C.D. 12 and then move to a city. The town in C.D. 12 may be an intermediate destination which, in a sense, provides a relatively slow transition from the farm to the urban situation. Since relatively few migrant children remain in C.D. 12 and most of them end up in the city, there must be relatively few intervening opportunities between farms in C.D. 12 and the City of Edmonton.

A farm adjustment and consolidation program has been contemplated for C.D. 12 in which farms for sale are to be purchased and consolidated with other units. The operators who want to leave the farm under this program can receive assistance in the form of retraining, moving allowances, and early retirement pensions. In order to estimate the number of people who would want to enter such a program the answers to some of the questions listed above can be used. Although 77% of the farm operators prefer farm work to any other kind, 39% of the farm operators are interested in non-farm employment. This reaction, coupled with the answers of 21% with plans to leave the farm and 26% with plans to sell the farm, would make an estimate of about 25% of all the farm operators in C.D. 12 who would be interested in some phase of a farm consolidation program seem reasonable.

In 1966, there were 4,134 census farms, a decrease of 8% since 1961. If the 25% who are projected as possibly leaving the farm were to leave in the next five years, farm numbers would decrease by 1,034, leaving 3,199 census farms in C.D. 12. This would be more than triple the rate of decrease which occurred between 1961 and 1966. This, if there is no in-migration of farmers and the farms made available by this out-migration, will be used to enlarge other farms presently in the area.

The results of the survey indicate that the majority of the farmers who have definite plans to sell are older people having low incomes and small farms. There are, however, between 9.3% (those who plan to sell) and 23.9% (those interested in non-farm employment) of the farm operators in C.D. 12 who are potential candidates for retraining programs.

Between 8% and 44% of these operators could move into retraining programs fairly readily because they have more than grade 8 education. It is estimated that there is a potential of 434 farmers who could be candidates for retraining programs. The remainder will need some upgrading.

Table 49

DESTINATIONS OF MIGRANT CHILDREN [1/]
x^2 CALCULATIONS

	Bonnyville	Smoky Lake	Lac La Biche	St. Paul	Total
In C.D. 12	13	5	2	8	28
Outside C.D. 12	14	19	10	17	60
TOTAL	27	24	12	25	88

fo	fc	fo-fc	$(fo-fc)^2$	$\frac{(fo-fc)^2}{fc}$
13	8.59	4.41	19.45	2.26
14	18.41	-4.41	19.45	1.05
5	7.64	-2.64	6.97	0.91
19	16.36	+2.64	6.97	0.43
2	3.82	-1.82		0.87
8	7.95	+0.05	0.00	0.00
17	17.05	-0.05	0.00	0.00

TOTAL 5.52

3 D.F. - Significant at 20% Level.

[1/] Results of survey conducted by Rural Development Research Branch.

Table 50

DESTINATIONS OF MIGRANT CHILDREN [1]

x^2 CALCULATIONS

Destination	Bonnyville	Smoky Lake	Total
In C.D. 12	13	5	18
Outside C.D. 12	14	19	33
TOTAL	27	24	51

fo	fc	fo-fc	$(fo-fc)^2$	$\frac{(fo-fc)^2}{fc}$
13	9.53	3.47	12.04	1.26
14	17.47	-3.47	12.04	0.69
5	8.47	-3.47	12.04	1.42
19	15.53	-3.47	12.04	0.78
TOTAL	4.15			

Significant at the 0.05 level.

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[1] Results of survey conducted by Rural Development Research Branch.

Table 51

DESTINATIONS OF MIGRANT CHILDREN [1]

x^2 CALCULATIONS

Destination	Bonnyville	Smoky Lake	Total
In C.D. 12	13	2	15
Outside C.D. 12	14	10	24
TOTAL	27	12	39

fo	fc	fo-fc	$(fo-fc)^2$	$\frac{(fo-fc)^2}{fc}$
13	10.38	2.62	6.86	0.66
14	16.62	-2.62	6.86	0.41
2	4.62	-2.62	6.86	1.48
10	7.38	+2.62	6.86	0.93
TOTAL	3.48			

Significant at 0.10 level.

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[1] Results of survey conducted by Rural Development Research Branch.

Table 52

DESTINATIONS OF MIGRANT CHILDREN [1/]

x^2 CALCULATIONS

Destination	Bonnyville	St. Paul	Total
Inside C.D. 12	13	8	21
Outside C.D. 12	14	17	31
TOTAL	27	25	52

fo	fc	fo-fc	$(fo-fc)^2$	$\frac{(fo-fc)^2}{fc}$
13	10.90	2.10	4.41	0.40
14	16.10	-2.10	4.41	0.27
8	10.10	-2.10	4.41	0.44
17	14.90	+2.10	4.41	0.30
TOTAL	1.41			

Significant at 0.30 level.

Table 53

INTEREST IN NON-FARM EMPLOYMENT [2/]

	Bonnyville		Smoky Lake		Lac La Biche		St. Paul		Total	
	#	%	#	%	#	%	#	%	#	%
Not Applicable or No Answer	2	3.0	6	11.3	8	17.4	5	6.2	21	8.5
Yes	27	40.3	20	37.7	13	28.3	37	45.7	97	39.3
No	38	56.7	27	51.0	25	54.3	39	48.1	129	52.2
TOTALS	67	100.0	53	100.0	46	100.0	81	100.0	247	100.0

[1/] Results of survey conducted by Rural Development Research Branch.

[2/] Ibid

Table 54

MOST FREQUENT DESTINATION OF MIGRANT CHILDREN 1/

	Bonnyville		Smoky Lake		Lac La Biche		St. Paul		Total		Those to Whom Question Applied	
	#	%	#	%	#	%	#	%	#	%	#	%
All At Home Or No Answer	40	59.7	30	55.5	34	73.9	56	69.1	160	64.5		
Farm in C.D. 12	3	4.5	0	0.0	0	0.0	0	0.0	3	1.2	3	3.4
Farm Outside C.D. 12	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Town in C.D. 12	10	14.9	5	9.3	2	4.3	8	9.9	25	10.1	25	28.4
Town Outside C.D. 12	1	1.5	1	1.9	3	6.5	0	0.0	5	2.0	5	5.7
City	13	19.4	18	33.3	7	15.3	17	21.0	55	22.2	55	62.5
TOTALS	67	100.0	54	100.0	46	100.0	81	100.0	248	100.0	88	100.0

1/ Results of survey concluded by Rural Development Research Branch.

Table 55 TYPE OF WORK PREFERRED [1/]

	Bonnyville		Smoky Lake		Lac La Biche		St. Paul		Total	
	#	%	#	%	#	%	#	%	#	%
Not Applicable or No Answer	8	11.9	5	9.4	10	21.7	11	13.6	34	13.9
Farm	59	88.1	41	77.3	34	73.9	57	70.3	191	77.3
Skilled Labour	0	0.0	0	0.0	0	0.0	6	7.4	6	2.4
Unskilled Labour	0	0.0	2	3.8	1	2.2	3	3.7	6	2.4
Office	0	0.0	2	3.8	0	0.0	2	2.5	4	1.6
Other	0	0.0	3	5.7	1	2.2	2	2.5	6	2.4
TOTAL	67	100.0	53	100.0	46	100.0	81	100.0	247	100.0

[1/] Results of survey conducted by Rural Development Research Branch.

Table 56 PLANS TO LEAVE THE FARM [1]

	Bonnyville		Smoky Lake		Lac La Biche		St. Paul		Total	
	#	%	#	%	#	%	#	%	#	%
Not Applicable or No Answer	3	4.5	2	3.8	5	10.9	3	3.7	13	5.3
Yes	17	25.4	16	30.2	6	13.0	13	16.0	52	21.0
No	47	70.1	35	66.0	35	76.1	65	80.3	182	73.7
TOTALS	67	100.0	53	100.0	46	100.0	81	100.0	247	100.0

Table 57 PLANS TO SELL FARM IN NEXT FIVE YEARS [2]

	Bonnyville		Smoky Lake		Lac La Biche		St. Paul		Total	
	##	%	#	%	#	%	#	%	#	%
Not Applicable or No Answer	2	3.0	3	5.7	2	4.3	2	2.5	9	3.7
Yes	23	34.8	19	35.8	7	15.2	15	18.5	64	26.0
No	34	51.5	21	39.6	30	65.3	58	71.6	143	58.1
Undecided	7	10.6	10	18.9	7	15.2	6	7.4	30	12.2
TOTALS	66	100.0	53	100.0	46	100.0	81	100.0	246	100.0

Table 58 AVAILABILITY OF OFF-FARM EMPLOYMENT [3]

	Bonnyville		Smoky Lake		Lac La Biche		St. Paul		Total	
	#	%	#	%	#	%	#	%	#	%
Not Applicable or No Answer	7	10.4	11	20.8	12	26.1	14	17.3	44	17.8
Yes	15	22.4	24	45.3	23	50.0	23	28.4	85	34.4
No	45	67.2	18	33.9	11	23.9	44	54.3	118	47.8
TOTALS	67	100.0	53	100.0	46	100.0	81	100.0	247	100.0

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[1] Results of survey conducted by Rural Development Research Branch.

[2] Ibid

[3] Ibid

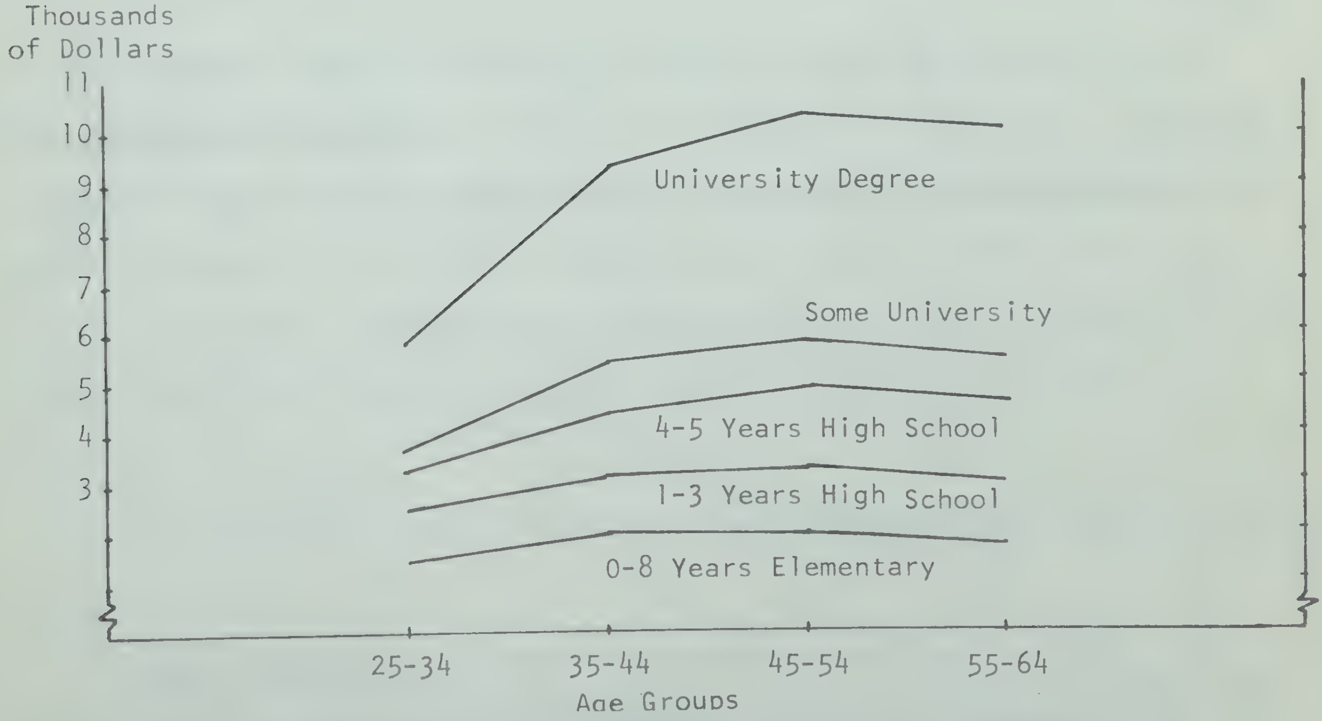
EDUCATIONAL

General

Education has traditionally been viewed as intellectually beneficial to those being educated but, it has also been evident for many years that there were financial benefits to the individual directly related to his education and training. A person with more education could obtain a better job and earn more money than a person with little education. Recently, it has become possible to estimate the returns to society due to increased productivity and incomes generated by education.

The private or individual benefits of education are the financial returns to students after finishing school. The more education they acquire, the higher their incomes will be in future years. Their increased incomes are illustrated in the figure below:

Figure 41 INCOMES BY AGE GROUP AND EDUCATION LEVEL MALE NON-FARM LABOUR FORCE, 1961 [1]



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[1] The Economics Council of Canada; Second Annual Review, Ottawa, 1965. p. 87.

As the above figure shows, the more education a man has, the higher his yearly income will be. A poorly educated man may draw a high weekly wage for a short time, but he is usually the first to be laid off in slack times. The Economic Council of Canada estimates that for every dollar a student spends on his education, he receives about 17.5¢ per year. This is 17.5% per year of his original investment which includes foregone income.[1/]

The community which has better educational facilities and consequently a well educated labour force available, also benefits. Highly specialized services are often needed to increase the output of goods in a given region. For example, the Athabasca Tar Sands Project created a need for highly skilled construction men, and in the future it will require a steady supply of skilled management and production workers. Education increases an individual's productivity, which brings increased salaries and profits. It has been estimated that in these ways, society receives about 12.5% per year of its original expenditure, including both public and private costs, on educating its labour force.[2/]

Since the average return in 1965 on private business investments in Canada was about 10%, it is evident that public expenditure on education is an economically sound investment. This is illustrated in Figure , page

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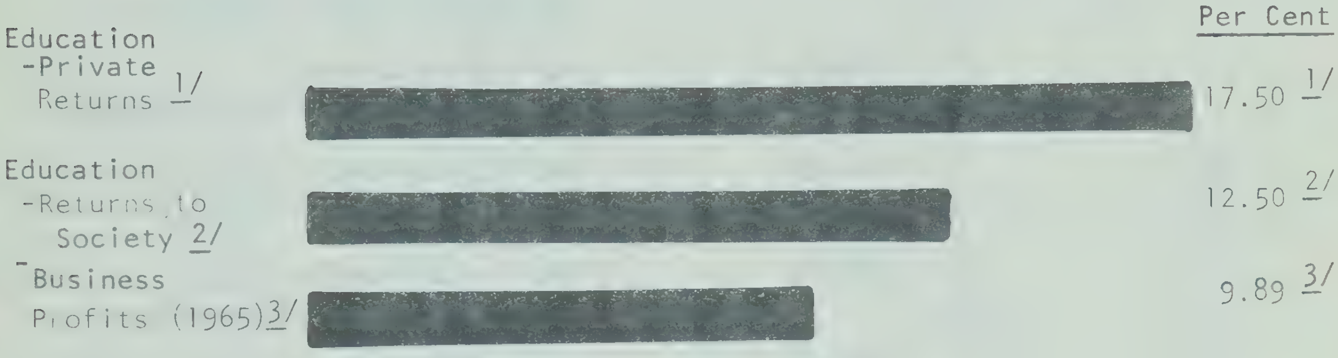
[1/] The Economic Council of Canada; Second Annual Review, Ottawa, 1965, p. 87.

[2/] Ibid.

Figure 42 PROFITABILITY COMPARISONS

(Returns on Investments of Canadian Corporations (1965) compared with the social and private returns on educational expenditures.)



The profitability comparison does not imply that C.D. 12 receives 12.5% on its education expenditures, because many young people who are educated in C.D. 12 move away, paying taxes and spending their earnings in other parts of Canada. However, the comparison does show that education is a sound economic investment, justifying a brief study of the educational facilities in C.D. 12.

High Schools of C.D. 12

High schools have been classified by Downey into types according to the number of students enrolled.[4] Since this same classification will be used in this report, the classification according to the number of students and some of the typical programs offered is shown in Table 59, Page 196.

1/ The Economic Council of Canada; Second Annual Review, Ottawa, 1965. p.90.

2/ Ibid p. 91.

3/ The Financial Post, Vol. LX, No. 20, Toronto, May 14, 1966. p. 1.

4/ Downey, Lawrence, W.; The Small High School in Alberta, The Alberta School Trustees' Assoc., Edmonton, 1965.

Table 59

HIGH SCHOOL CLASSIFICATION [1]

Type of School	No. of Students	Scope of Program
I	1- 39	Partial Matriculation
II	40- 99	Reasonable Matriculation Few General Education Options
III	100-199	Full Matriculation More General Education Options
IV	200-299	Matric. and General Education Options Modest Minor Patterns
V	300-399	Matric. and General Education Options Reasonable Minor Patterns
VI	400+	Matric. and General Education Options Comprehensive to Vocation and Technical Patterns

Figure 43 shows the type and location of high schools in the southern part of C.D. 12. The largest school in the area is Type III of which there are five. Thus, five of the twenty-four high schools in C.D. 12 offer a full matriculation program.

From Figure 44 it is evident that 40% of the students in C.D. 12 attend these five schools offering full matriculation.

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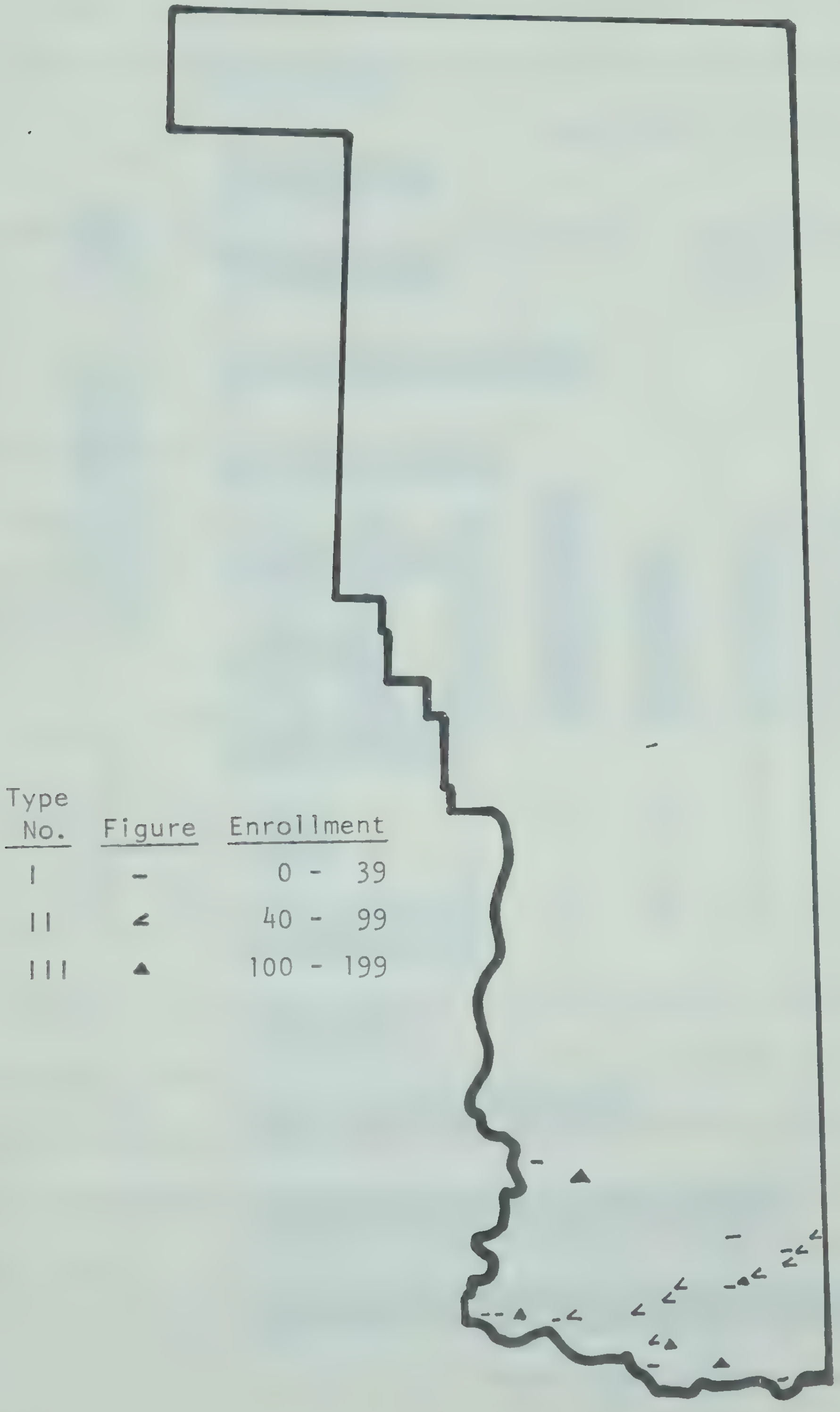
[1] Downey, Lawrence, W.; The Small High School in Alberta, The Alberta School Trustees' Assoc., Edmonton, 1965.

Figure 43 DISTRIBUTION OF HIGH SCHOOLS BY TYPE, C.D. 12 - 1965 [1/]



Type No.	Figure	Enrollment
I	–	0 - 39
II	∠	40 - 99
III	▲	100 - 199

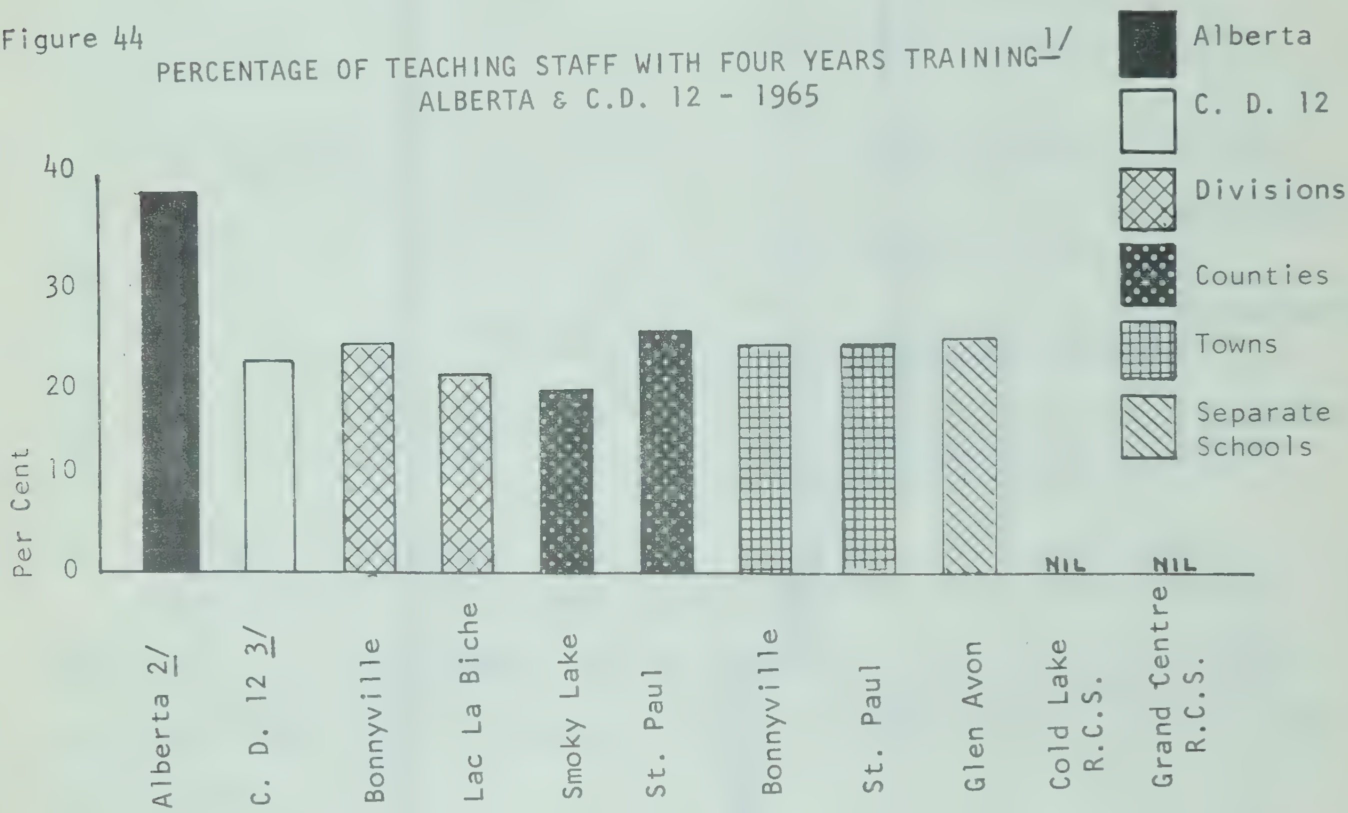
[1/] Downey, Lawrence, W.; The Small High School - Alberta, The Alberta School Trustees' Assoc., Edmonton, 1965.

Note: Canadian Forces School (Beaver River) is omitted.

Teacher Qualifications

One indicator of the quality of education is the qualifications of the teaching staff. If C.D. 12 is compared with Alberta generally, it can be seen that the area has difficulty competing with larger centres for highly trained staff. This is illustrated below:

Figure 44



PERCENTAGE OF TEACHING STAFF WITH FOUR YEARS TRAINING 1/
ALBERTA & C.D. 12 - 1965

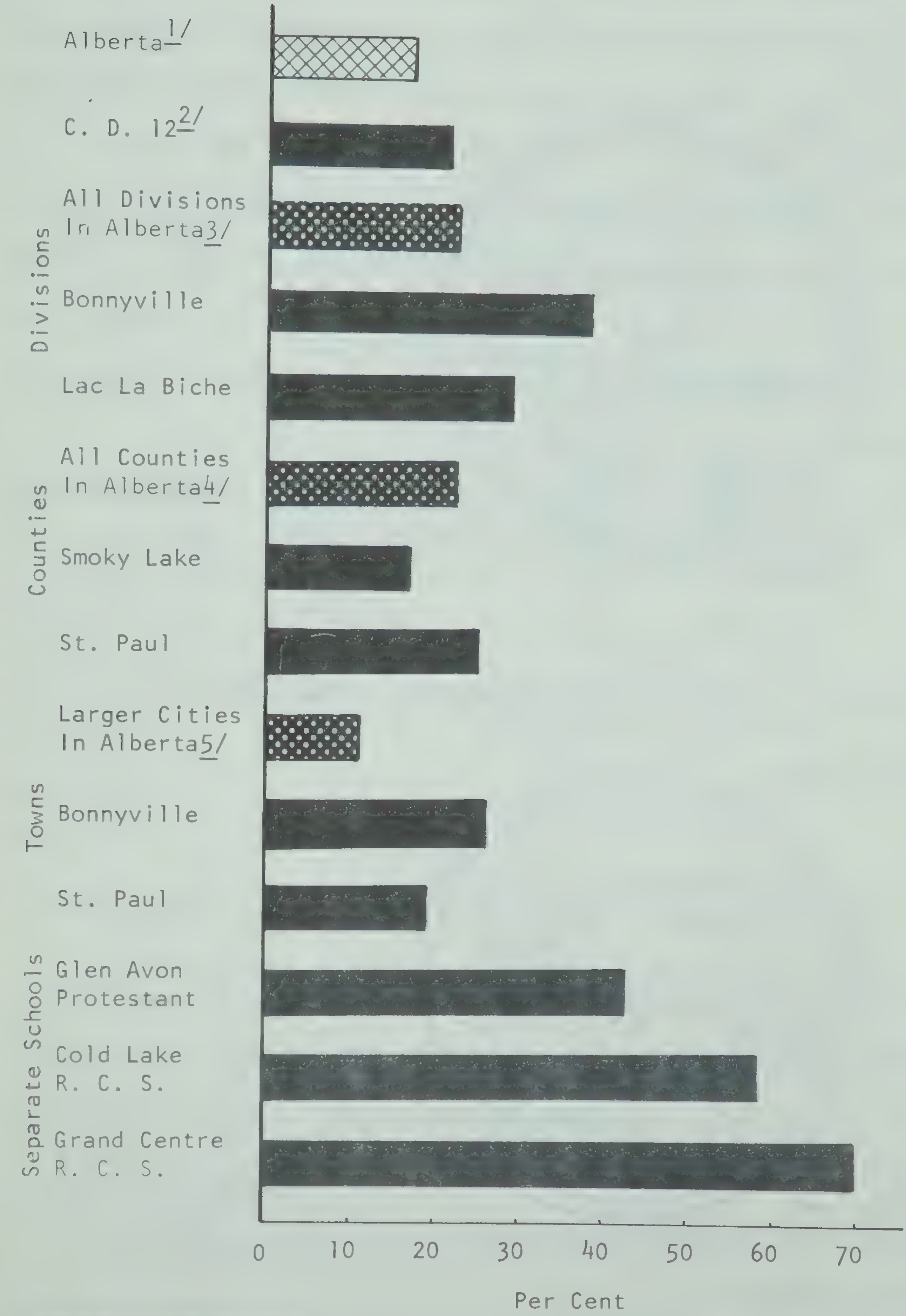
The qualifications of teachers in C.D. 12 are generally lower than the provincial average. Some of the reasons for the difference in qualifications can be understood through an examination of teachers supply and demand. Figure shows that the rate of teacher resignations in C.D. 12 is higher than the provincial average. School Boards in C.D. 12 had to recruit 17 to 70 per cent of their total teaching staff in 1965, while the average was 17 per cent for Alberta and 11 per cent for the larger cities.

1/ Speical tabulations, Rural Development Research Branch from sources given below:

2/ Wicks, J.E., and Rieger, T.F.; The Alberta Teaching Force, September 1966 Research Monograph No. 12, The Alberta Teachers' Assoc., Barnett House, Edmonton, 1967.

3/ The Sec. Treasurer's Supplement to the Auditor's Financial Statement for the year ending December 31, 1965, School Administration Division, Alberta Department of Education, Edmonton, 1966.

Figure 44 PERCENTAGE OF TEACHING STAFF RESIGNING
ALBERTA & C. D. 12 - 1965



1/ Chamchuk, N.J.; Teacher Mobility and Retention in Alberta, Alberta Department of Education, Edmonton, 1966. (unpublished study)

2/ The Secretary Treasurer's Supplement to the Auditor's Financial Statement for the year ending December 31, 1965, School Administration Division, Alberta Department of Education, Edmonton 1966.

3/ (See No. 1/ above)

4/ Ibid

5/ Ibid

Figure 46
SOURCES OF TEACHERS FOR CENTERS UNDER 30,000 POPULATION [1/]

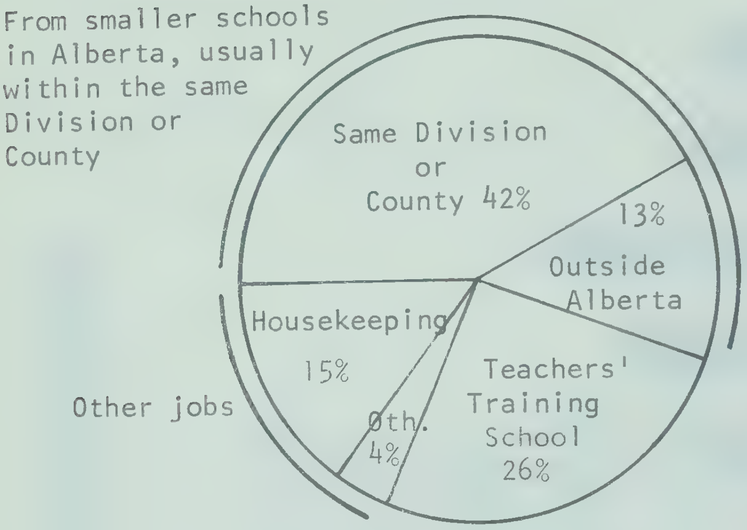
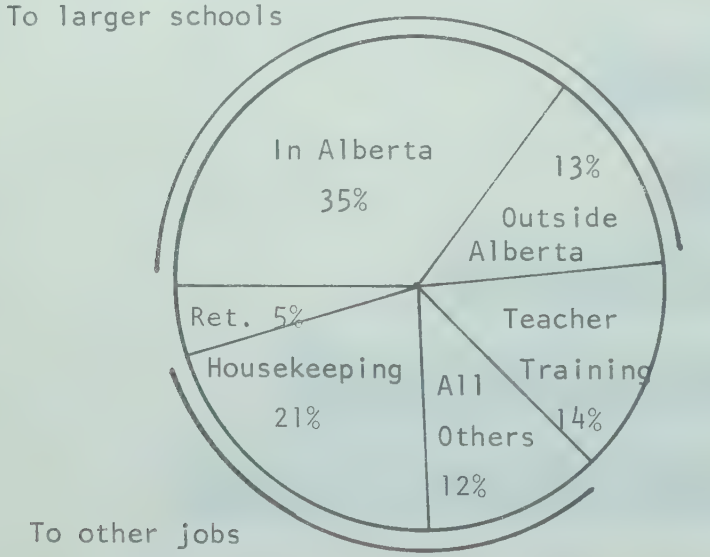


Figure 47
DESTINATIONS OF TEACHERS RESIGNING FROM ALL SCHOOL UNITS [2/]



[1/] Chamchuk, N.J.; Teacher Mobility and Retention in Alberta, Alberta Department of Education, 1966. (unpublished study) p. 10.

[2/] Ibid p. 14

Where teachers come from and where they go after they resign further documents the difficulty which school boards in C.D. 12 have in retaining good teachers. The flow of teachers is mainly from the smaller schools to the larger schools either within or outside the rural areas.[1/]

In addition to describing the flow of teachers into and out of the small centres, the reasons for this mobility should be examined. Below is a tabulation of the main sources of dissatisfaction among teachers who resign from their schools.

Table 60 COMPLAINTS OF RESIGNING TEACHERS* [2/]

Type of System	Inadequate Living Conditions and Social Amenities	Personality Conflict With Staff, Administration and School Boards	Lack of Advancement Opportunities
Alberta	19	12	11
Large Cities	--	--	8
Counties	24	11	14
Divisions	27	14	9
Others	11	16	9

* Per cent of teachers mentioning a specific complaint.

It would appear that resigning teachers are mainly concerned with professional advancement, better working and social conditions, and better personal relations at a prospective school.

Financing Education

The average operating cost per student in Alberta and in C.D. 12 is

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[1/] (private communication, N. J. Chamchuck, see also 1/, previous page).

[2/] Chamchuck, N. J.; Teacher Mobility and Retention in Alberta, Alberta Department of Education, Edmonton, 1966. (unpublished study) pp. 12-16.

illustrated in Figure 48. It can be seen that the operating cost per student for all of C.D. 12 is close to the average for rural Alberta. However, marked differences in costs are evident from one school unit to another.

Table 61 gives a comparison of taxpayers' expenditures per student for cities, rural Alberta and C.D. 12. Generally speaking, taxpayers in C.D. 12 pay less than those in other rural areas, but again there are marked exceptions to this trend. The Northland School Division is really in a class by itself, since it has ten schools operating in very remote areas of C.D. 12 where the tax base is very small and expenditures per student are very high.

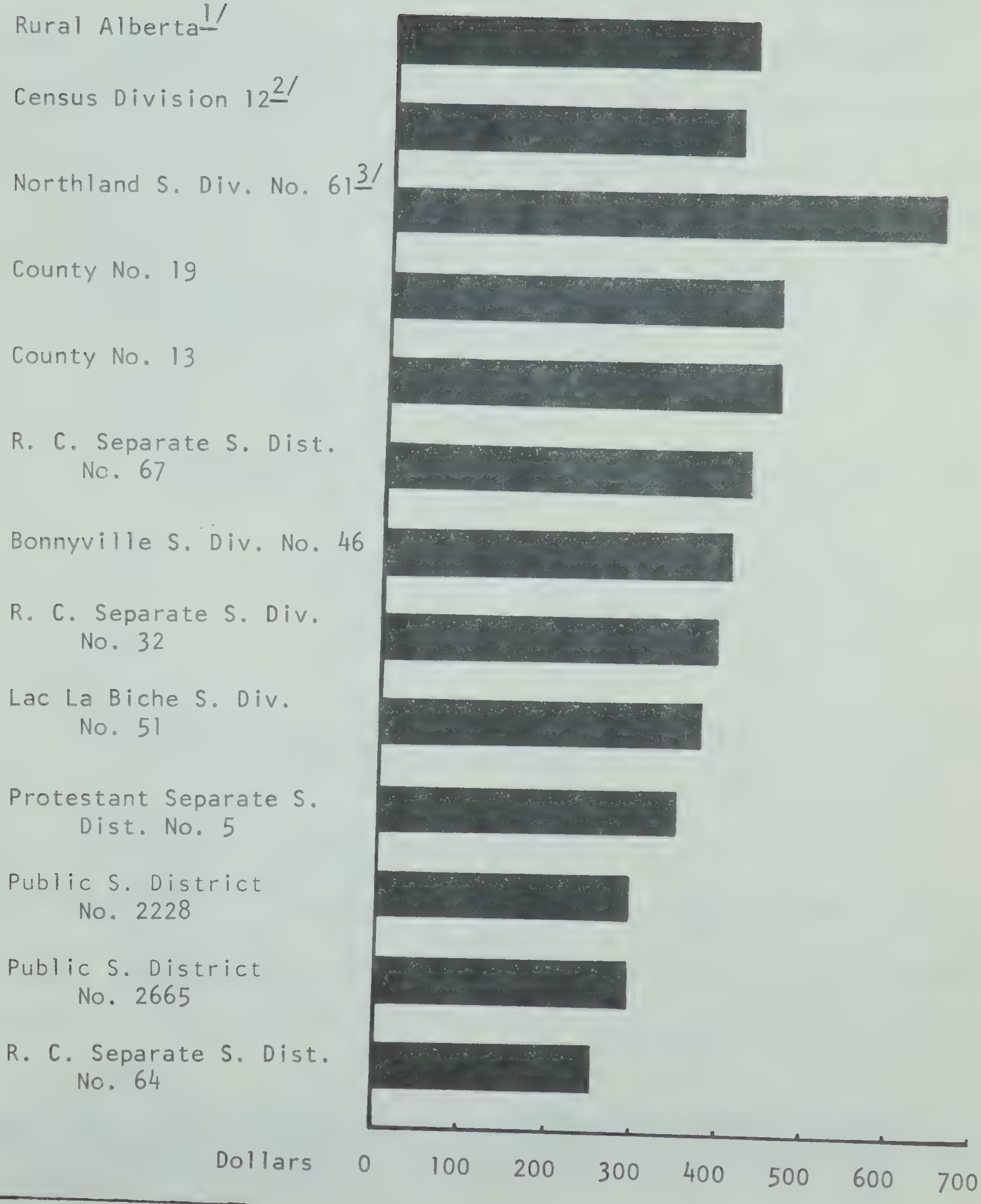
Table 61 EXPENDITURES AND REQUISITIONS PER STUDENT [1/]
CITIES, RURAL ALBERTA AND C.D. 12 - 1964

AREAS	EXPENDITURES PER STUDENT	SUPPLEMENTARY REQUISITIONS PER STUDENT
Cities	$387	$33
Rural Alberta	453	34
Census Division No. 12	429	25
Northland School Div. No. 61*	646	7
St. Paul County No. 19	462	33
Smoky Lake County No. 13	456	34
Grand Centre R.C.S. No. 67	426	42
Bonnyville School Div. No. 46	404	26
St. John's Ft. McMurray No. 32	369	14
Lac La Biche School Div. No. 51	378	--
Glen Avon Protestant No. 5	341	22
St. Paul Public School Dist. No. 2228	311	17
Bonnyville Public School Dist. No. 2665	311	26
Cold Lake R. C. S. No. 64	275	22

* Expenditures and supplementary requisition revenues per student are estimated for Northland School Division with C.D. 12.

[1/] Alberta Department of Education; Annual Report, 1965, Edmonton, 1965. City figures were subtracted from Alberta total figures and C.D. 12 areas were examined individually.

Figure 48 OPERATING EXPENDITURES PER STUDENT
ALBERTA & C. D. 12 - 1964



1/ Alberta Department of Education; Annual Report, 1965, Edmonton, 1965. (City figures were subtracted from Alberta figures.)

2/ Ibid (Individual school areas were examined.)

3/ Operating expenditures for Northland within C.D. 12 were assumed to be equal to the entire division.

Educational Attainment of Young People in C.D. 12

In this section, students leaving school in C.D. 12 are compared with those in city school districts as well as those in rural school districts throughout Alberta. This latter comparison is made possible by subtracting city figures from those of Alberta, leaving what will be called, rural Alberta.

The problems of educating children in C.D. 12 are in some respects typical of rural Alberta. For example, Tables 61 and 62 show that the proportion of enrolled students leaving school, and also the mid-year drop-out rate of students in C.D. 12 is comparable with the rest of the province.

Table 62 PER CENT OF ENROLLED STUDENTS LEAVING SCHOOL [1/]
FOR ALL DESTINATIONS (1964-1965)

	Cities	Rural Alberta	C.D. 12
Boys	5.9	5.6	5.7
Girls	5.7	5.8	5.8
Boys and Girls	5.8	5.7	5.8

Table 63 ESTIMATED* MID-YEAR DROP-OUTS (1964-1965) [2/]
PER CENT OF ENROLLED STUDENTS

	Cities	Rural Alberta	C.D. 12
Boys	2.7	2.6	2.8
Girls	1.9	1.9	1.9
Boys and Girls	2.3	2.3	2.4

* Mid-year transfers out of Alberta were assumed to equal late transfers into Alberta. This latter figure was therefore subtracted from the total number discontinuing in Alberta in calculating the above values.

1/ Alberta Department of Education; Annual Report, 1965, Edmonton p.p. 194-195, 205. Special tabulations, Rural Development Research Branch.

2/ Ibid p. 302 ff.

The proportion of enrolled students who leave schools to enter the labour force is slightly higher in C.D. 12 than the rest of Alberta as Table 64 indicates. Of those who leave school to enter the labour force in C.D. 12, 64 per cent are boys and 36 per cent are girls, (See Table 65.) This appears to be typical of all rural areas in Alberta.

Table 64 STUDENTS LEAVING SCHOOL TO ENTER THE LABOUR FORCE-1965 [1]

Per Cent of Enrollment

	Cities	Rural Alberta	C.D. 12
Enrolled Boys	3.3	3.6	4.4
Enrolled Girls	2.6	2.0	2.7
Total Boys and Girls	3.0	2.8	3.6

Table 65 STUDENTS ENTERING LABOUR FORCE-1965 [2]

	Cities	Rural Alberta	C.D. 12
Boys	57	65	64
Girls	43	35	36
Boys and Girls	100	100	100

Figure 49 shows that students in rural areas leave school earlier to enter the labour force. This is especially true for C.D. 12, where a high proportion of young people leaving school will need more training to compete successfully in the labour force.

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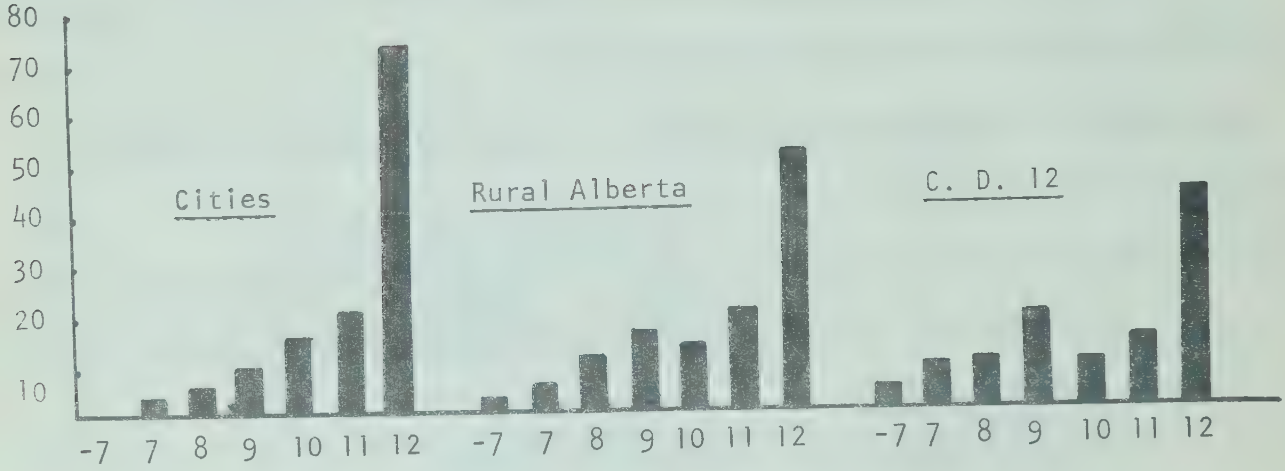
[1] Alberta Department of Education; Annual Report, 1965, Edmonton, 1965. p. 194 ff. Special tabulations, Rural Development Research Branch.

[2] Ibid p. 205 ff.

Figure 49 EDUCATIONAL LEVELS OF STUDENTS LEAVING SCHOOL TO ENTER THE LABOUR FORCE - 1965 [1]



Girls Who Leave School

It was noted that the proportion of enrolled girls who leave school was comparable throughout Alberta. However, differences do show up when the destinations of girls leaving school in C.D. 12, rural Alberta and the city districts are compared.

For example, of the girls in C.D. 12 who leave school, the proportion who become employed exceeds the rural average and approaches the city average. This is shown in Figure 50. The proportion going to further training, however, is lower than that of the city and the rural areas. The proportion of girls who look for work but become unemployed is twice that of the cities and four times as high as rural areas in general.

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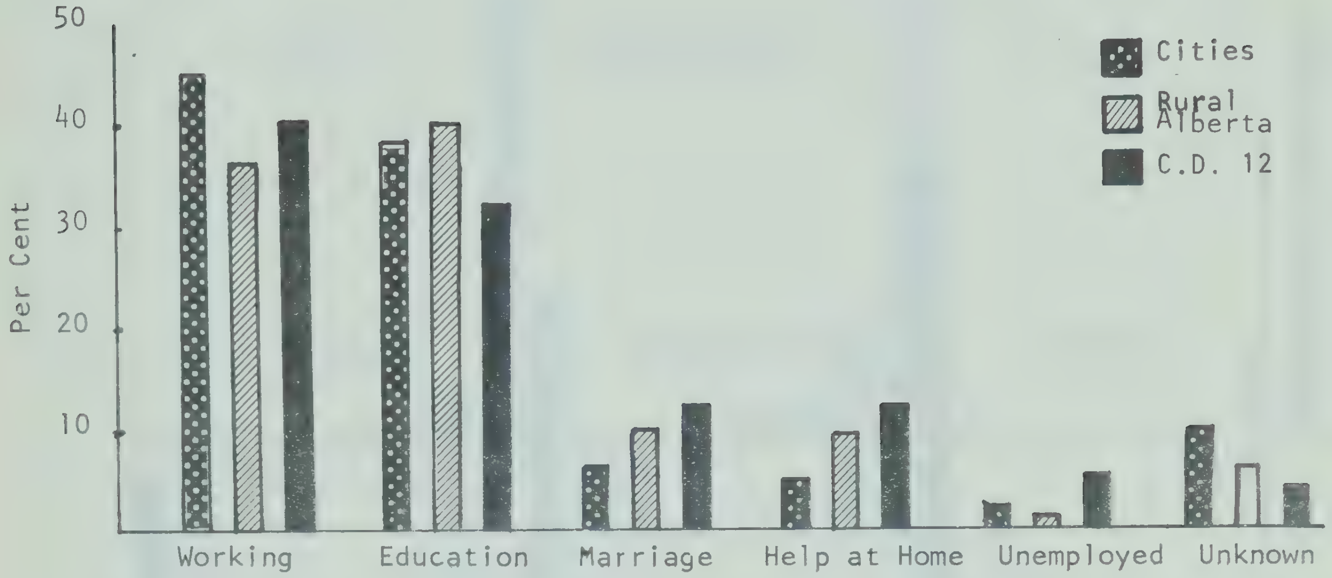
[1] Alberta Department of Education; Annual Report, 1965, Edmonton, 1965. p. 302 ff. Special tabulations, Rural Development Research Branch.

Figure 50 DESTINATIONS OF ALL GIRLS LEAVING SCHOOL [1/]
1964 AND 1965



Girls in rural areas, and especially in C.D. 12, leave school earlier to find employment than those in cities. This is illustrated in Figure About 28% of these girls in C.D. 12 have grade nine or less education. Fifteen per cent of rural girls and only six per cent of city girls who leave school for work have grade nine.

Clerical and service occupations account for over half of the girls leaving school to enter the labour force as illustrated below.

Table 66 PERCENTAGE OF GIRLS ENTERING CLERICAL AND SERVICE OCCUPATIONS [2/]

	City Districts	Rural Alberta	C.D. 12
Clerical	45	36	33
Service Trades	13	24	24
	58	60	57

[1/] Alberta Department of Education; Annual Report, 1965, Edmonton, 1965. p. 302 ff. Special tabulations, Rural Development Research Branch.

[2/] ibid

Figure 51 GRADE LEVELS OF GIRLS LEAVING SCHOOL FOR WORK - 1965 1/

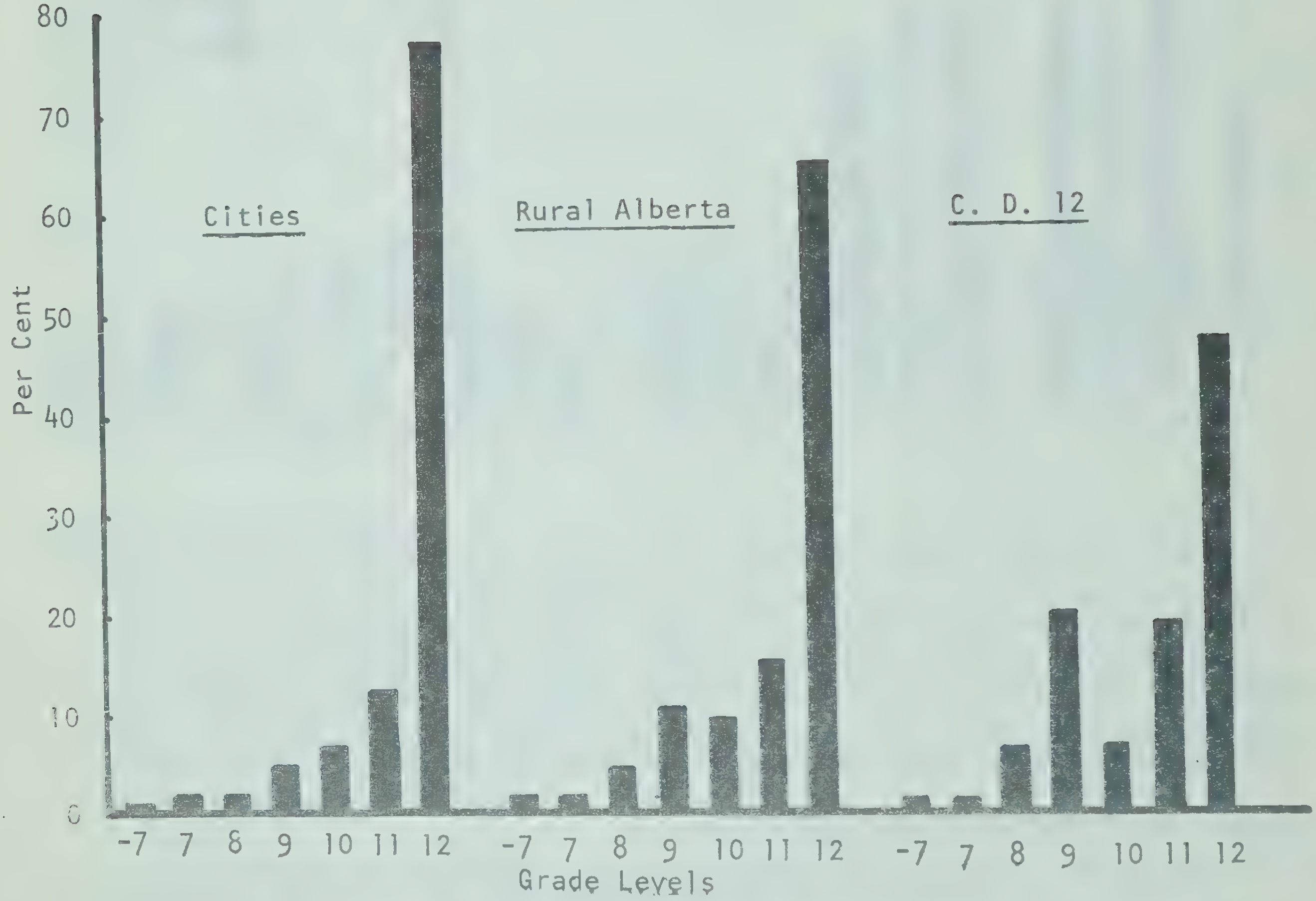


Table 66 shows that the proportion of girls going into service occupations is the same in C.D. 12 as in rural Alberta, but fewer go into clerical work. The educational attainment of girls in C.D. 12 who enter these two occupations is somewhat lower than in other areas of Alberta. Figures 52 and 53 illustrate these relationships.

1/ Alberta Department of Education; Annual Report, 1965, Edmonton, 1965. p. 302 ff. Special tabulations, Rural Development Research Branch.

Figure 52 EDUCATIONAL LEVELS OF GIRLS LEAVING SCHOOL FOR CLERICAL OCCUPATIONS - 1965 1/

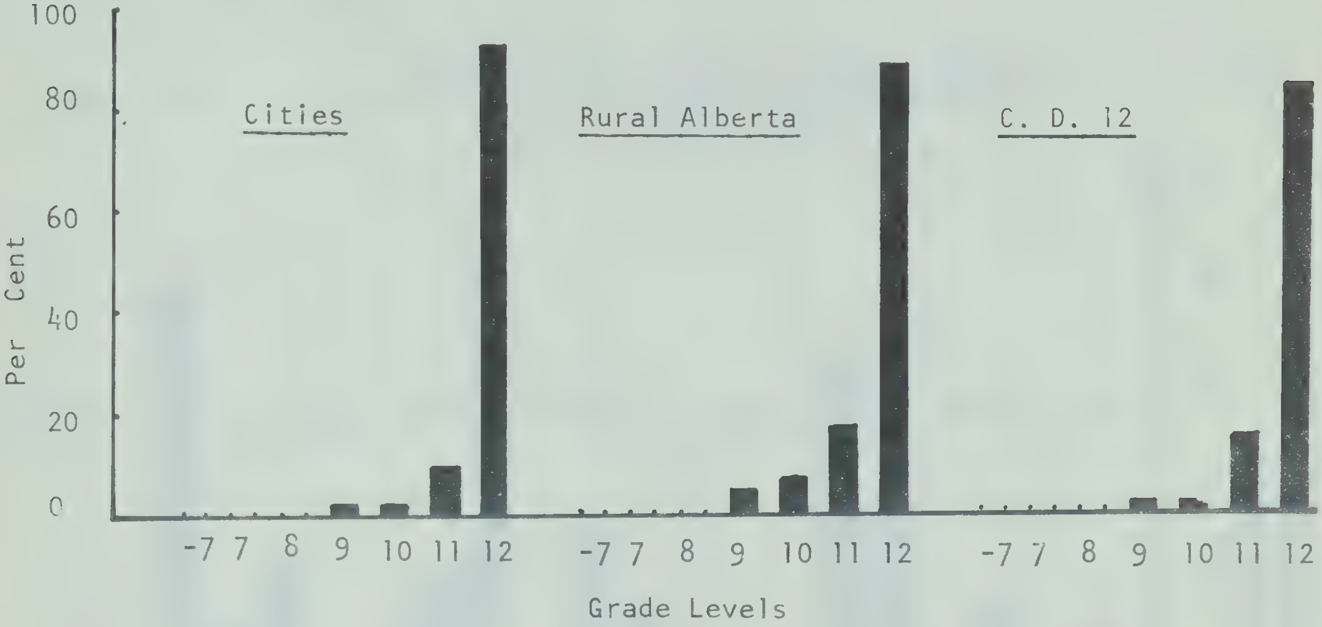
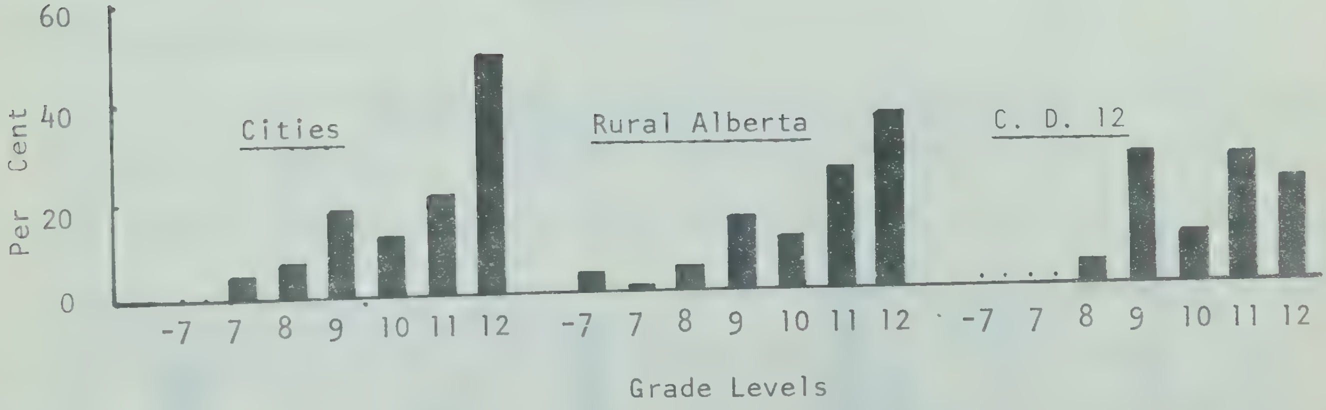


Figure 53 EDUCATIONAL LEVELS OF GIRLS LEAVING SCHOOL FOR SERVICE OCCUPATIONS - 1965 1/



The educational level of girls in C.D. 12 is again illustrated in Figures 54, 55 and 56 which describes the grade levels of girls who become unemployed, who help at home, or who get married after leaving school.

1/ Alberta Department of Education, Annual Report, 1965, Edmonton, 1965. p. 302 ff. Special tabulations, Rural Development Research Branch.

2/ Ibid

Figure 54 EDUCATIONAL LEVELS OF GIRLS LEAVING SCHOOL WHO BECOME UNEMPLOYED - 1965 1/

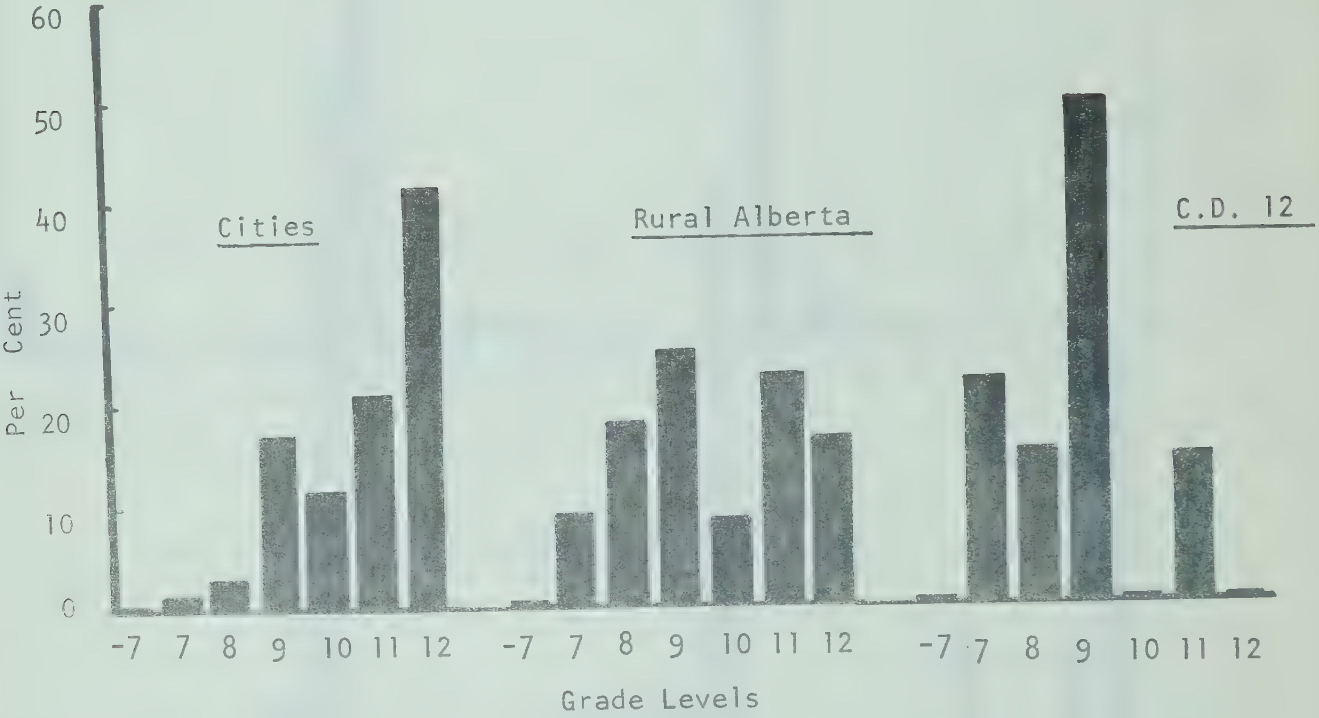
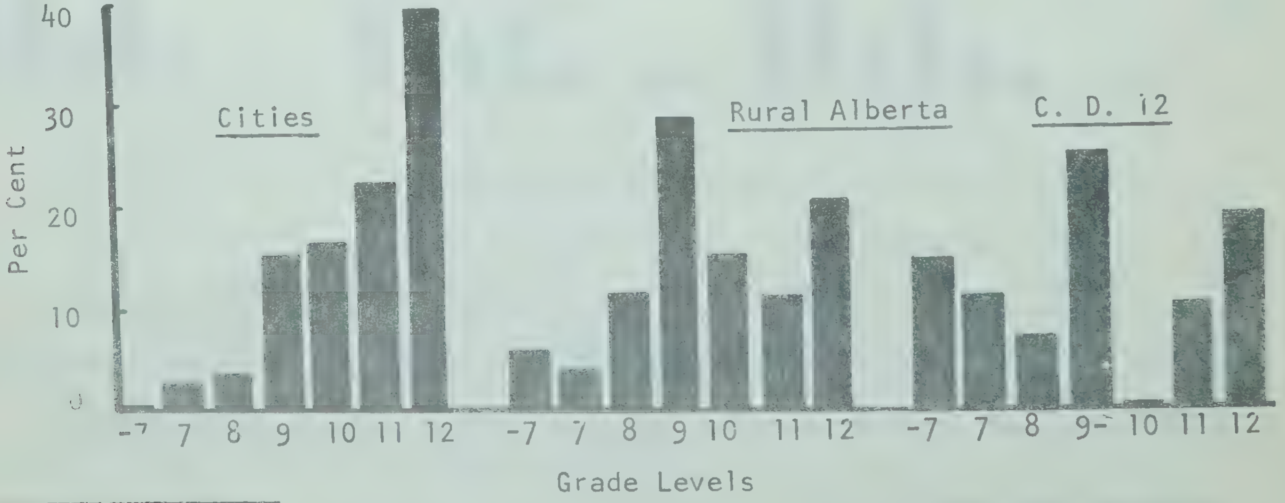


Figure 55 EDUCATIONAL LEVELS OF GIRLS LEAVING SCHOOL WHO HELP AT HOME - 1965 2/

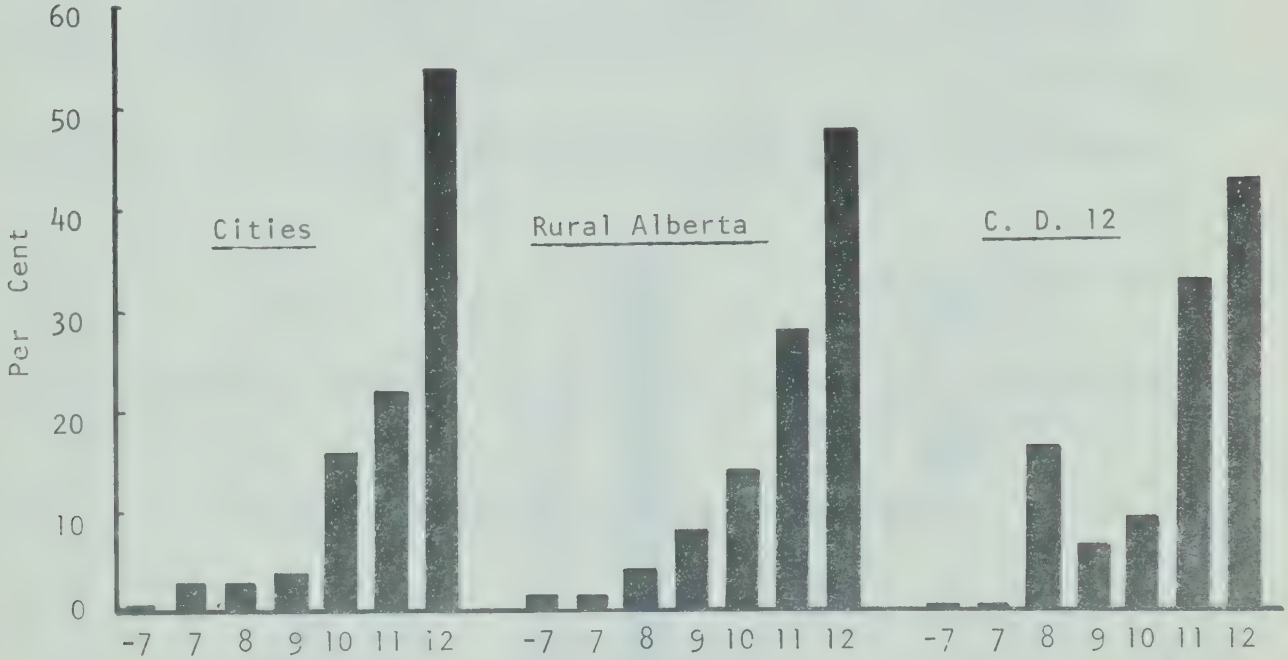


1/ Alberta Department of Education; Annual Report, 1965, Edmonton, 1965. p. 302 ff. Special tabulation, Rural Development Research Branch.

2/ Ibid

The educational levels of these girls in C.D. 12 is generally lower than those in other areas.

Figure 56 EDUCATIONAL LEVELS OF GIRLS LEAVING SCHOOL WHO GET MARRIED - 1965 [1]



Boys Who Leave School

It was noted earlier that the proportion of enrolled boys leaving school was roughly the same in rural as in urban areas. Table 67 shows these relationships and also compares the destinations of boys who leave school. In C.D. 12, a lower proportion of boys go to further training, and a correspondingly higher proportion go to work immediately upon leaving school. Twice as many boys in C.D. 12 as in other areas become unemployed when they leave school.

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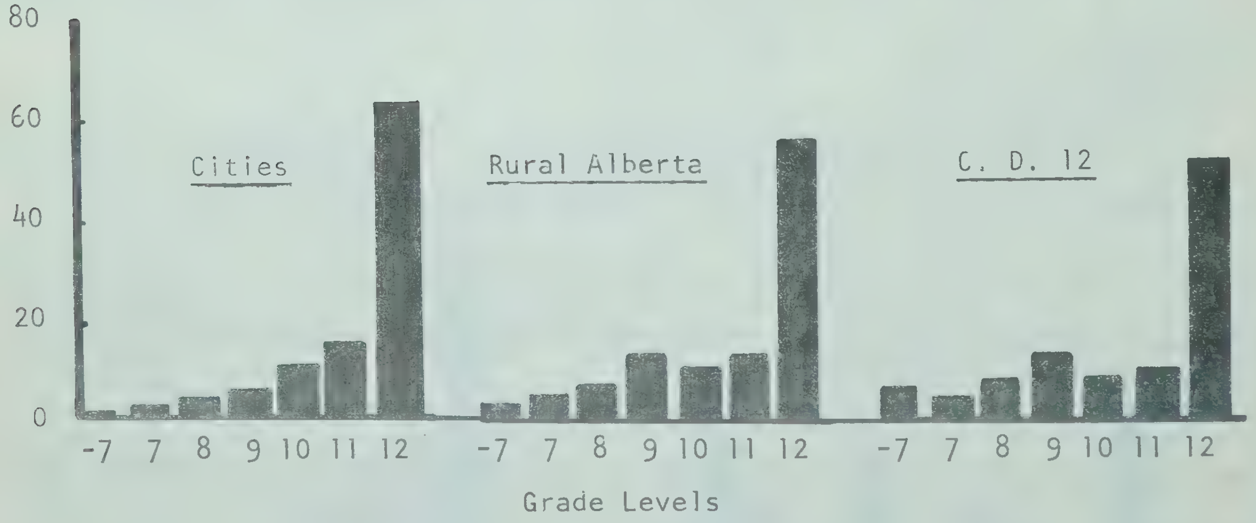
[1] Alberta Department of Education; Annual Report, 1965, Edmonton, 1965. p. 302 ff. Special tabulations, Rural Development Research Branch.

Table 67 PERCENTAGE OF ENROLLED BOYS LEAVING SCHOOL - 1965 [1]

	Cities		Alberta		C.D. 12	
Education						
University/College	1.3)		.6)		.5)	
Trade School	.7)	5.2	.8)	4.8	.7)	5.2
	)		)		)	
Employment	3.2)		3.4)		4.0)	
Unemployed	.2		.2		.4	
Unknown	.3		.3		.5	
Per Cent of All Boys Enrolled	5.9		5.3		6.1	

Boys leave school earilier in C.D. 12 than in other rural or urban areas, as shown in Figure 57.

Figure 57 GRADE LEVEL OF BOYS LEAVING SCHOOL - 1965 [2]



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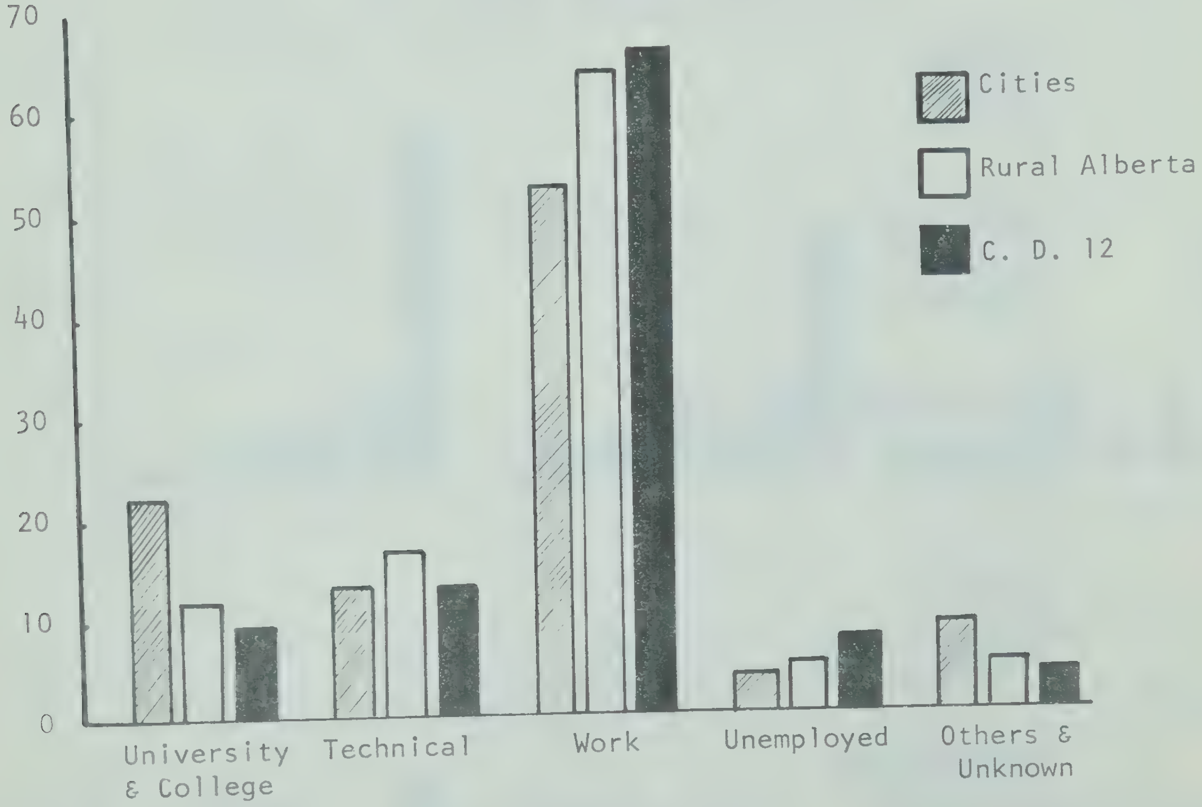
[1] Alberta Department of Education; Annual Report, 1965, Edmonton, 1965, p. 302 ff. Special tabulations, Rural Development Research Branch.

[2] Ibid

Figure 58 gives a comparison of the destinations of boys leaving school in C.D. 12, rural Alberta and cities. It is notable that the proportion of boys from C.D. 12 who go to technical or trade schools is the same as that for the cities, but lower than that of other rural areas. However, the proportion going to work immedicately upon leaving school in C.D. 12 closely resembles the proportion going to work in other rural areas.

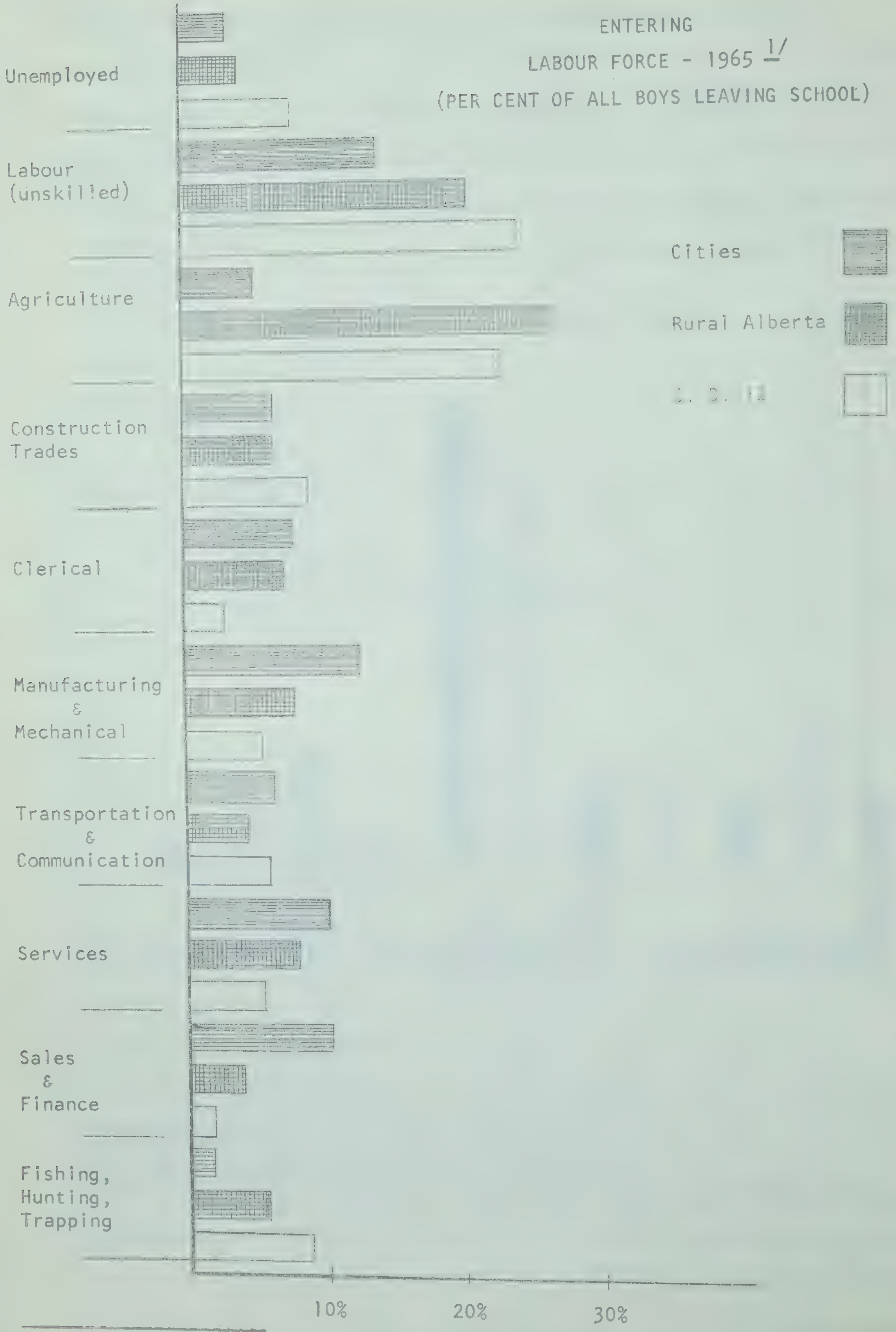
Figure 58 DESTINATIONS OF BOYS LEAVING SCHOOL - 1965 [1/]



A more detailed analysis of where boys go after they leave school is presented in Figure 59.. Again, it can be seen that a higher proportion of boys in C.D. 12 who leave school become unemployed. Higher proportions of C.D. 12 boys also take up unskilled and semi-skilled jobs. A significantly lower proportion of C.D. 12 boys go into agriculture upon leaving school. Comparatively few get clerical or sales positions.

[1/] Alberta Department of Education; Annual Report, 1965, Edmonton, 1965. p. 102 ff. Special tabulations, Rural Development Research Branch.

Figure 59



DESTINATIONS OF BOYS
ENTERING
LABOUR FORCE - 1965 [1]
(PER CENT OF ALL BOYS LEAVING SCHOOL)

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[1] Alberta Department of Education; Annual Report, 1965, Edmonton, 1966. p. 302 ff. Special tabulations, Rural Development Research Branch,

Figure 60 and 61 show the grade levels at which boys leave school to enter the labour force. In general, boys in C.D. 12 leave school earlier to find work and those who become unemployed have far lower educational attainment than boys in other areas. This indicates that comparatively more training will be needed to bring these boys into a competitive position in the labour force.

Figure 60 BOYS LEAVING SCHOOL TO ENTER LABOUR FORCE WHO ARE EMPLOYED - 1965 1/

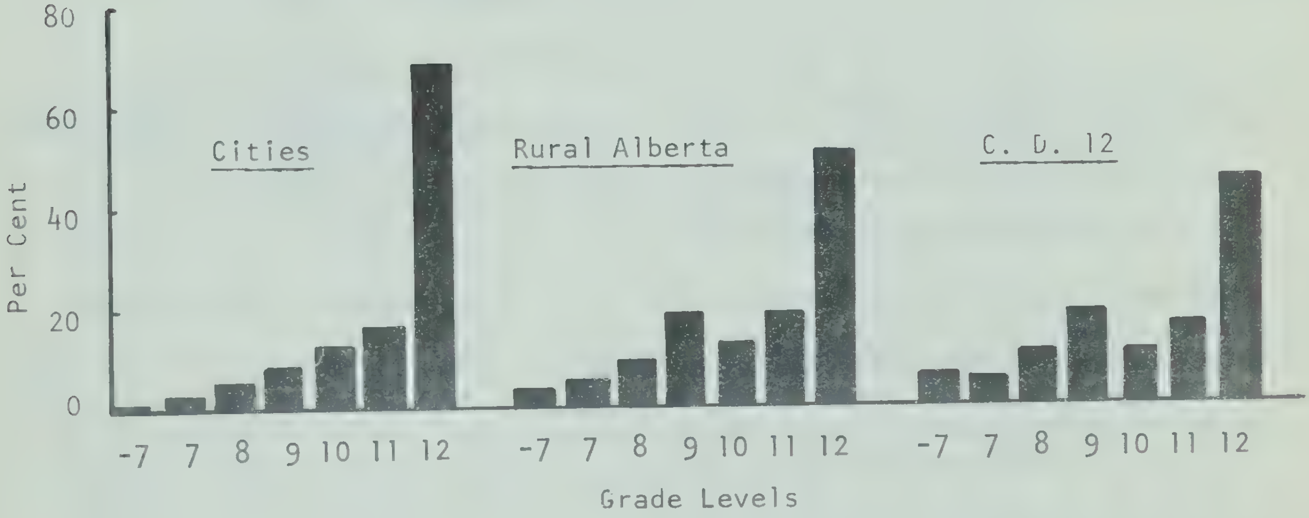
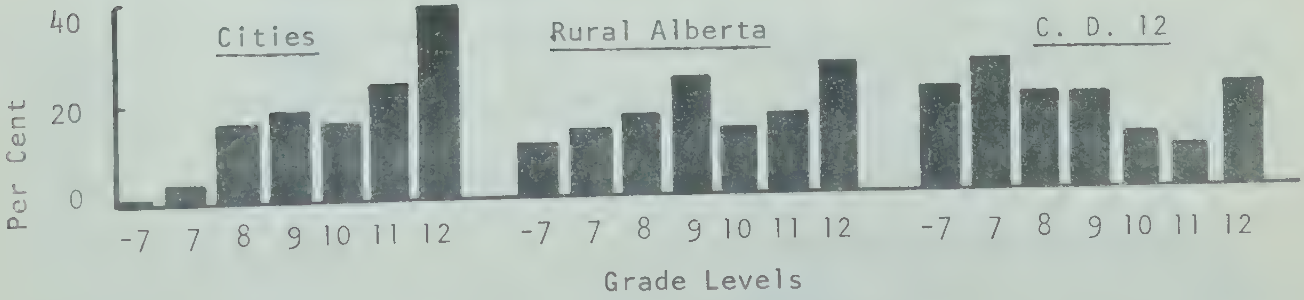


Figure 61 BOYS LEAVING SCHOOL TO ENTER LABOUR FORCE WHO ARE UNEMPLOYED - 1965 2/



1/ Alberta Department of Education; Annual Report, 1965, Edmonton, 1965, p. 302 ff. Special tabulations, Rural Development Research Branch.

2/ Ibid

The number of teachers required in C.D. 12 will also increase. If the present student/teacher ratio is maintained and the present C.D. 12 participation rate does not change, there will be 763 teachers required in C.D. 12 by 1976. If the C.D. 12 teacher/student ratio is increased to the present Alberta level and the participation rate rises to the present Alberta level, then 816 teachers will be needed by 1976. Table 69 shows details of the adjustments.

Table 68 PROJECTED NUMBER OF SCHOOL ROOMS REQUIRED
C.D. 12 - 1976

Rooms Required Using 1966 C.D. 12 Students/Room Ratio	Projected No. of Rooms	Change From 1966
C.D. 12 1966 Participation Rate	676	+159
Alberta 1966 Participation Rate	752	+235
Room Required Using 1966 Alberta Students/Room Ratio		
C.D. 12 1966 Particiaption Rate	560	+ 43
Alberta 1966 Participation Rate	646	+129

Table 69 PROJECTED TEACHER REQUIREMENTS
C.D. 12 - 1976

Teacher Requirements Using Present C.D. 12 Teacher Load	1976 Requirements	Change From 1966
C.D. 12 Participation Rate	763	+158
Alberta Participation Rate	879	+274
Teacher Requirements Using Present Alberta Teacher Load		
C.D. 12 Participation Rate	708	+103
Alberta Participation Rate	816	+211

There are 24 high schools in C.D. 12 and all of these have fewer than 300 students. Approximately 30% of Alberta students attend schools of this size and the remainder attend larger schools. The total number of rooms available in all schools in C.D. 12 in 1966 was 517, resulting in an average number of students per room of 23.26. The average number of students per room for all of Alberta was 27.1.

Table 70 AVERAGE NUMBER OF STUDENTS PER ROOM
C.D. 12 & ALBERTA - 1966

Number of Students in C.D. 12	12,027
Number of Rooms in C.D. 12	517
Number of Students/Room in C.D. 12	23.26
Number of Students/Room in Alberta	27.07

The teacher load in terms of number of students per teacher was also less in C.D. 12 than in Alberta generally. There were 605 teachers in C.D. 12 schools in 1966, resulting in an average student per teacher ratio of 19.88. The ratio for all of Alberta was 21.42.

Table 71 NUMBER OF STUDENTS PER TEACHER
C.D. 12 & ALBERTA - 1966

Number of Students in C.D. 12	12,027
Number of Teachers in C.D. 12	605
Number of Students/Teacher in C.D. 12	19.88
Number of Students/Teacher in Alberta	21.42

The teachers of C.D. 12 also have less training on the average than teachers in Alberta. In Alberta generally, 38.5% of teachers have at least four years of training, while in C.D. 12 only 21.0% of the teachers have this level of training. A higher proportion of C.D. 12 teachers resign each year than do Alberta teachers, with 28% of C.D. 12 teaching staff resigning as compared to 17%, the Alberta average.

Operating expenditures per student are less for C.D. 12 than for Alberta generally, with C.D. 12 schools spending an average of $429 per student compared to $453 per student for rural Alberta. The cities of Alberta spend an average of $387 per student to operate their schools.

Table 72 OPERATING EXPENDITURES PER STUDENT
C.D. 12 & RURAL ALBERTA - 1966

C.D. 12 Operating Expenditures	$5,159,583
Number of Students in C.D. 12	12,027
Operating Expenditures/Student in C.D. 12	429
Operating Expenditures/Student in Rural Alberta	453

Future Situation

It is projected that by 1976 the population of C.D. 12, considering projected economic growth, will rise to 66,927 persons. At this time, it is estimated that there will be 26,838 persons between the ages of 5 and 24. If it is assumed that nothing is done to change the present participation rate of 56.53%, then by 1976 there will be 15,172 students in C.D. 12 schools. This is an increase of 3,145 students. If the C.D. 12 participation rate can be raised by 1976 to the present Alberta rate of 65.13%, then there will be 17,480 students in C.D. 12 schools. This would be an increase of 5,453 students. If the Alberta rate is not attained by 1976, then using present standards, the number of people between the ages of 5 and 24 years who are not in school but should be in school, will rise from the present figure of 1,829 to 2,353 by 1976. (See Table 73, Page 219.)

Table 73

PROJECTED STUDENT POPULATION
C.D. 12 - 1976

	1966 (Actual)	1976 (Projected)
Population 5-24 years	21,275	26,838
Number of Students Using C.D. 12 1966 Participation Rate	12,027	15,172
Number of Students Using Alberta 1966 Participation Rate	13,856	17,480
Potential Student Adjustment	1,829	2,353

Increases in student popualtion, will mean increases in the facilities and teachers required and the costs incurred in operating the school system. Readjustments will be needed in the number and location of school rooms by 1976. If the present C.D. 12 ratio of students per room (23.26) is maintained and the C.D. 12 particpation rate is not changed, then 676 classrooms will be required by 1976. This is an increase of 159 classrooms from the number presently in the area. If changes occur to increase the number of students per room to the present Alberta level and the participation rate increases to the Alberta level, then the number of classrooms required will increase by 129 to 646. Four combinations of projected student population and students per room are listed, Table 73.

The adjustment required in school rooms will be of greater magnitude than indicated in Table 70 because of the shift in the location of the population of C.D. 12. In 1966, 75% of the population of C.D. 12 lived in rural areas (farms and villages of less than 1,000 population), while in 1976 it is projected that only 55% of the population will reside in these areas. Because of this shift in location of the population, some schools will be closed, necessitating the building of additional units.

EDUCATION; A SUMMARY

Present Situation

There were 12,027 students enrolled in C.D. 12 schools in 1966. This is 56.53% of the 21,275 people between the ages of 5 and 24. The provincial participation rate for this age group is 65.13%. If it is assumed that the provincial participation rate is desirable for C.D. 12, then there are 1,829 persons who should be attending school in C.D. 12, but are not.

C.D. 12 students tend to leave school at a rate similar to the rest of Alberta with 5.8% of all enrolled students leaving in any one year. However, students in C.D. 12 tend to leave at earlier grade levels than students in other areas. If students leaving school to enter the labour force are considered (1965), then 45% of C.D. 12 students have Grade 12 as compared with 50% for rural Alberta and 70% for Alberta cities. If we consider all students leaving the school system in 1965, then 46.7% of C.D. 12 students have a Grade 12 education compared with 60.6% for rural Alberta and 74.6% for the cities of Alberta. (See Table 74.)

Table PERCENTAGE OF STUDENTS LEAVING SCHOOL IN 1965 WITH STATED LEVELS OF EDUCATION*

Grade	C.D. 12	Rural Alberta	Cities of Alberta
I-VI	5.5	1.6	.2
VII	5.4	2.4	.8
VIII	8.2	4.7	1.8
IX	15.2	9.8	5.4
X	6.5	7.8	6.8
XI	12.5	13.1	10.4
XII	46.7	60.6	74.6
	100.0%	100.0%	100.0%

* Summary of date previously presented.

Not only will more teachers be needed by 1976, but these teachers will require more training. If the training level of teachers in C.D. 12 is to be raised to the present Alberta level, then the present teaching staff will need some additional training. At present, there are 605 teachers in C.D. 12 and 21% (127) of these have four years of training. If the present teaching staff were to receive training to bring them to the present Alberta level (38.5% having four years of training) then 105 teachers would need additional training. Table 75 shows total teacher requirements and the requirements in terms of teachers with four years of training by 1976.

Table 75 PROJECTED NUMBER OF TEACHERS WITH FOUR* YEARS OF TRAINING REQUIRED IN C.D. 12 BY 1976

	Total Teacher Requirements	Number Required With Four Years of Training
With Present Teacher Load:		
C.D. 12 Participation Rate	763	294
Alberta Participation Rate	879	338
With Present Alberta Teacher Load:		
C.D. 12 Participation Rate	708	273
Alberta Participation Rate	816	314

* If training level raised to present Alberta standards.

Operating expenses will also increase as the school population increases. Table 76 shows projected operating expenditures for C.D. 12 schools in 1976 and the adjustments that will occur. If expenditures per student rise to the Alberta average and the participation rate is raised to the Alberta level, then an additional $27 million per year will be required in operating expenses.

Table 76 PROJECTED OPERATING EXPENDITURES
C.D. 12 - 1976

	Total Expenditures	Increase From 1966
At Present C.D. 12 Level		
C.D. 12 Participation Rate	$6,508,788	$1,349,205
Alberta Participation Rate	7,498,920	2,330,337
At Present Rural Alberta Level		
C.D. 12 Participation Rate	6,872,916	1,713,333
Alberta Participation Rate	7,918,440	2,758,857

Problems and Goals

The above discussion points out several problem areas in education in C.D. 12. These are:

1. Low participation rate of those ages 5-24
2. Low education levels of those leaving the school system
3. Low proportion of teachers with four years of training
4. High turnover of teaching staff
5. The need for expanding facilities in education in the next ten years

The goal of a rural development program is to increase incomes, employment opportunities and educational opportunities of people in the rural development area. The specific goals in the field of education then, would be to increase the education levels of people leaving the school system and to raise the participation rate. In order to achieve these goals, there will be some adjustments in the other problem areas mentioned above.

Programs

It is evident from the above discussion that the school system in C.D. 12 is not meeting the needs of all the school age people in that area and that changes will be necessary. Some of the changes which have been suggested are:

1. Pre-school programs - kindergarten, playschools, etc.

2. Counsellors - to counsel students in present academic problems - future academic and vocational plans

3. Family involvement - programs to bring greater awareness of education problems to parents

4. Varied elementary programs

5. Better trained teachers - specially qualified teachers

6. Vocational high school programs - pre-employment programs and other additons to the junior and high school curriculum

7. Teacher aid programs

8. Highly trained teachers' counsellors

Each of these will be discussed in turn.

1. Pre-school Programs: In 1966, there were 7,124 persons under the age of five years in C.D. 12 and approximately 1,454 who were five years of age. By 1976 there will be approximately 1,820 five year old children in C.D. 12. It is assumed that most of the effort in pre-school programs will be directed to children who are five years of age. There are several questions which arise as to the structure, purpose, and methods of such a program. It is suggested that pre-school programs have as their central purpose, the preparation of children for school so that they do not have school experiences which are frustrating, boring and lead to a lack of interest in school in later years. Studies of children of lower income families in other areas have found that these children have limited vocabularies, inadequate self-images, and a limited range of experiences.1/ The object of a pre-school program is to teach the child self-worth, broaden his range of experiences, develop his speech and vocabulary, increase curiosity through learning experience, teach personal cleanliness and creative expression.2/

1/ The institute of Labor and Industrial Relations; Poverty and Human Resources Abstracts, Vol. II, No. 2, The University of Michigan - Wayne State University, Ann Arbor, Mar. - Apr. 1967. p. 119.

2/ P.H.R.A. Vol. II, No. 1, Jan. - Feb. 1967. p. 95.

It is suggested that such a program be administered by the local school board so that the program can be geared to the needs of the local area. The program should be available to all children on a voluntary basis, but this program should be coupled with a family involvement program to create a demand by parents of children who would benefit most. This family involvement program should not be inititated or sponsored by people in the field of education. There should also be an evaluation built into the pre-school program to assess its results. Pre-school programs should not result in an attempt to teach grade one a year earlier, but should be directed at enrichment of cultural background and other goals mentioned above. If pre-school programs are initiated, changes should be made in the regular school system to take advantage of the child's pre-school activities.

The costs involved in such a program would vary widely according to type of teacher, transportation problems and other problems of a local nature, but since such programs would run only half days, it would probably be reasonable to estimate costs to be about half that of regular school students (approximately $200). The total cost for the 1,454 children (Age 5, 1966) would be $290,800, and this would rise to $364,000 for the estimated 1,820 children of this age in 1976.

2. Counsellors: There are many studies which have concentrated on reasons for school drop-outs. Some of these reasons can be summarized as follows:[1/]

1. The most meaningful curriculum is aimed at the minority of students who will attend college or university.
2. There are changes in the family which cause problems (e.g. divorce).

[1/] The Institute of Labor and Industrial Relations; Poverty and Human Resources Abstracts, Vol. II, No.4, The University of Michigan - Wayne State University, Ann Arbor, Jul. - Aug. 1967. p. 49.

3. There are problems associated with increased family mobility (i.e. geographic mobility)
4. Families concentrate on material comforts.
5. Lack of a faith tends to contribute to problems.
6. Advertising influences family values and standards.
7. Problems arise when students feel that the value system of their home is quite different from that of the school.

Some of these reasons may be applicable in C.D. 12; others are not. The problems mentioned above which are associated with curriculum and other topics, will be discussed later. The problems associated with a counselling situation are: family problems, family mobility and differences between family and school values (numbers 2,3, & 7), and some of the others to a lesser degree. The differences in value systems will be an area of need in C.D. 12, especially with native children. Trained counsellors could be of assistance in promoting understanding and adjustments to these problems. Counsellors can also broaden a student's aspirations by broadening knowledge of possible alternatives.

3. Family involvement: Several of the problems mentioned above include family attitudes and activities. Families need to be made more aware of the demands the schools place on the student and of the conflict in values that occurs within the student. For some families, adult education courses with appropriate emphasis will be satisfactory, but this method often does not teach the people who could benefit most from the information. Family involvement in many cases must come through individual contact. One method of doing this is through a 'home visitor program' using local non-professional people in this capacity. These people could receive orientation and support from a social worker, a home economist, a public health nurse, the school counsellors and a school teacher. They could provide an invaluable link between the school and the home as well as providing general information and encouragement

to the families with whom they work. The work of these home visitors could develop an impetus toward participation by these families in the adult education programs referred to above, as well as special conference sessions with teachers and counsellors as the need arises.

Another method of family involvement may be to hold training sessions with strategic local leaders; supplied with instructional and discussion material they would return to their local districts and invite three or four of their neighbors into their home to discuss this material.

The above three methods of involving families are summarized below:

1. - public affairs on leadership type of adult education programs
2. - small discussion group neighborhood meetings
3. - home visitor programs

The public affairs and leadership programs are discussed under the heading of "Adult Education". The home visitor programs could be administered by the Preventive Social Services Director. In areas where there is no Preventive Service Director, local leaders could be stimulated to initiate such a program through public affairs and leadership courses.

The estimated costs of the above programs are given in the "Adult Education" section of this report.

4. Varied Elementary Programs: The essential ideal behind this concept is that a student can work at his own rate and is not in direct competition with the other students. Such programs include:

    1. - ungraded elementary education
    2. - programmed instruction
    3. - some students assisting other students
    4. - continuation of cultural enrichment which is started in the pre-school programs

Such programs need a great deal of orientation of teaching staff and parents.

They also require a fairly stable staff of teachers and an extremely rigorous and complete set of records. With each child working at his own rate, it is necessary to have a record of (approximate) progress so that he is able to start at the appropriate level each year. Under this system, a child may take more or less than six years to complete the present six elementary grades.

Parents need orientation and education so that they are able to understand and accept an upgraded system and accept necessity of parent-teacher discussions. This could be done through the family involvement programs mentioned before.

5. Better and Specially Trained Teachers: The school system in C.D. 12 has a special problem in cross-cultural education. Some of the teachers now being trained in the intercultural education program could be of assistance in this area. It is also evident that the training level of teachers is lower in this area than is generally the case in the rest of Alberta. Teacher stability is also desirable in many facets of education. Teachers with more special training should be paid accordingly. Teachers with professional attitudes also want opportunities to develop professionally and the opportunity to work in special and experimental programs could be included in the varied elementary and family involvement programs beforehand and also in the Teacher Aid and Teacher Counsellor Programs which will be mentioned later.

6. Vocational Programs, Pre-employment Programs and other additions to the Junior High and High School Curriculum: One of the contributing factors to school drop-outs, mentioned above, is that the most meaningful curriculum is in the university preparation field. It is only a minority of students who will enter this field so some other meaningful types of activity should be provided. When a person leaves school, he should have some skill which he can sell in the labour market.

7. Teacher Aid Program: This type of program has been initiated in several areas of the United States under the 'New Careers Program'. To quote from a recent publication:

"Even if the recently inaugurated compensatory programs for the poor had a desirable effect, it would be two decades before the beneficiaries of that program could enter the labour force. Recent trends in major cities of the United States have emphasized that we cannot wait two decades for change (if, indeed, the desired change would come through modest tinkering with education that currently typifies education "innovations"). The alternative is to change the nature of the service by creating entry positions in health, education, and welfare which would be open to all. These entry duties would relieve the professional of all menial tasks he is now required to perform. The entry position would be a career, offering security and horizontal mobility through pay increments for years of service and limited opportunities for promotion. Vertical mobility would also be possible if education were brought to the person on the job. If the entry worker were given credit for what he learns on the job, and if, in addition, college matriculation were facilitated by arrangement with community colleges, extension services, state colleges, and universities, he could in two years be eligible for the next step, with two years of paid work experience and supportive college backup. This could be sustained until he ultimately attained the terminal professional status. The essence of the new career is the establishment of a series of landings which allow everybody, regardless of station, an opportunity to progress within the dictates of ability or motivation". [1]

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[1] Pearl, Arthur; "New Carreers: One Solution to Poverty", Poverty and Human Resources Abstracts, Vol. II, No. 5, The University of Michigan - Wayne State University, Ann Arbor, Sep. - Oct. 1967. p.24.

The same article goes on to give the following example of how this program could be organized in a school system and an outline of the costs involved:

1) Teacher Aide

Prerequisite: Six weeks on-the-job training or equivalent.

Duties: Clerical functions, supervisor of hallways, homework help, laboratory aide, library aide, showroom attendant, audio-visual operator. Junior member of teaching team.

Post Service Training: Training on the job for which college credits are received (especially classroom management and teaching practice). Supportive theory and content courses in evenings and summers.

Promotional Opportunities: Eligibility for teacher assistant if complete prerequisite or Aide II --more responsibilities in above described duties.

Salary:	Aide I	$3,500 to $5,150
	Aide II	$4,200 to $5,850

2) Teaching Assistant

Prerequisite: Two years of appropriate college work or two years of service as Aide and 36 units of college work in growth and development and specific course content.

Duties: Assisting teacher or teacher associate in the classroom conducting small groups, supervising teacher aide. Intermediate member of teaching team.

Post Service Training: Continuation of program described for aide, additional college work (education theory and further sophistication in content areas).

Promotional Opportunities: Eligibility for teaching associate if complete prerequisites or Assistant II; more responsibilities in above described duties.

Salary:	Assistant I	$4,500 to $6,150
	Assistant II	$5,200 to $6,850

3) Teaching Associate

Prerequisites: Five years appropriate college work; three years of service as assistant and 36 units of college work in supervision and content specialization.

Duties: Classroom instruction, senior member of teaching team, supervisor of aide, and assistant.

Post Service Training: Continuation of program described for aide and assistant, additional college work (education theory, further sophistication in content areas, consultation and supervision).

Promotional Opportunities: Eligibility for teacher on completion prerequisites.

Salary: $7,000 to $10,000

4) Teacher

Prerequisites: M.A. in Education, three years of service as associate, and 48 units of college work in consultation, supervision and content specialization.

Duties: Teaching of aide, assistant teachers; consulatation to lower echelon staff; supervision and specialist in content areas (guest lecturer on teaching team); and administration.

Post Service Training: Continuation of program with goal of further development leading to doctoral degree.

Promotional Opportunities: Opportunity to advance to local, state, or national structures, transfer to university setting.

Salary: $9,000 to $15,000

Table 77 COMPARISON OF COSTS OF TWO SYSTEMS OF EDUCATIONAL PROGRAMMING

	SYSTEM I			SYSTEM II		
	Certified Teacher Only			Echelon of Staff of Aide, Assistant, Associate, and Teacher		
	No.	Rate	Salary	No.	Rate	Salary
Teacher	100	$8,000	$800,000	10	$10,000	$100,000
Associate	-	-	-	40	8,000*	320,000
Assistant	-	-	-	40	6,000*	240,000
Aide	-	-	-	35	4,000*	140,000
TOTAL	100		$800,000	125		$800,000

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* Assuming some of the staff in these categories had earned wage increments for years of service.

Perhaps some modifications or adaptations of this program could be used in C.D. 12, at least in an experimental way. There are several advantages which would seem to be forthcoming if this program is used.

a) Better teachers may be attracted because of higher salaries and the challenge of working in new programs.

b) Students of low income and non-white groups will receive incentives because they see some of 'their' people in 'white man's' jobs.

c) The student/teaching staff ratio can be reduced.

d) Communication between the essentially 'middle class' teachers and the 'lower class' students can be improved by recruiting people from the 'lower class' as aids.

e) This type of program could supply some immediate employment for people who are presently unemployed.

f) This program also includes some of the advantages of a teacher-counsellor system described below.

8. Highly Trained Teacher Counsellors: This is a type of 'in-service training' for teachers in local schools. These counsellors would assist teachers in improving teaching techniques, keep teachers aware of the latest methods, visual aids, and other advances in the teaching profession and assist them in making use of these advances. The counsellors could also assist in developing new and unique approaches to special problems encountered in C.D. 12, such as inter-cultural education problems.

Adult Education

Adult education covers a wide range of topics and sometimes means different things to different people. In this report, adult education will be taken to include upgrading, retraining, in-service training, public affairs and leadership training, and agricultural short courses. Some of these topics are discussed in other sections of the report and some are partially covered. The in-service training has been covered briefly in reference to non-professional 'aids' of various types. Courses in the agricultural field are discussed in the agriculture section. Upgrading and retraining are referred to in the agriculture, Indian and Metis, and Welfare sections. The estimated costs of upgrading and retraining are included in the summary of needed adjustments. It has been estimated that approximately 2,000 people in C.D. 12 will need upgrading and/or retraining by 1976. This includes 434 from agriculture, 932 people of Indian ancestry and about 634 from other sectors. Provision has also been made, and is discussed in the welfare section, for counselling services to assist people, (entering retraining), in choosing the field which they wish to enter and in further counselling as they move through the training program. Public affairs and leadership training programs have probably had the least discussion although the parts of these programs which are most pertinent to the agricultural field are discussed in the agricultural section of the report.

One of the most prevalent features of the society in which we live is rapid change. Change is not spread equally geographically nor are changes in one sector of the economy integrated with changes in other sectors. These differences in rates of change continually cause adjustment problems. These adjustment problems affect people at every level of decision making. Farmers need to know about agricultural trends in order to make decisions about their individual operations; school boards need to know about trends in population so that they can make decisions regarding when and where schools should be built; local governments need to know about prospective economic developments in order to plan for services; all people who are involved with community activities need to understand how a community operates and how to gain public support and acceptance; and parents need to understand some of the problems their children have in school and in other areas of their life. All of these needs come under the general heading of leadership training and public affairs. This type of a program needs an individual with a background in the social sciences who can coordinate activities, get local groups to organize and sponsor courses, organize material, and bring in resource people. One person could probably organize these programs for all of C.D. 12 but would need funds to pay for course expenses, resource people, etc. The program would probably take $20,000 a year for ten years for a total cost of $200,000. One hundred thousand dollars is included in the agricultural section of this report.

HEALTH

The population of C.D. 12 is served by two health units: the North Eastern Health Unit and the Athabasca Health Unit. The Athabasca Health Unit serves I.D. 102, in C.D. 12 and extends west to include the entire population around Lesser Slave Lake. Consequently, data from this unit is not entirely representative of the C.D. 12 population. One municipal nursing station and four Federally financed nursing stations also serve C.D. 12 (See map, page).

The purpose of health units is to provide preventive health service comparable to those available in the cities. They avoid duplicating the diagnostic and treatment services of doctors and hospitals.

There are 23 doctors and one chiropractor in C.D. 12. There is one doctor for every 2,202 people in C.D. 12, whereas in Alberta, there is a doctor for every 894 people. The public health nurse-population ratio is 1:4916, or one nurse for every 4,916 people in the North Eastern Health Unit. 1/ The latter figures compare favourably with the Alberta average of one Public Health Nurse for every 5,167 people. 2/ There are four dentists in C.D. 12 or about one to every 10,000 people, compared with Alberta's ratio of one dentist to every 3,000 people.

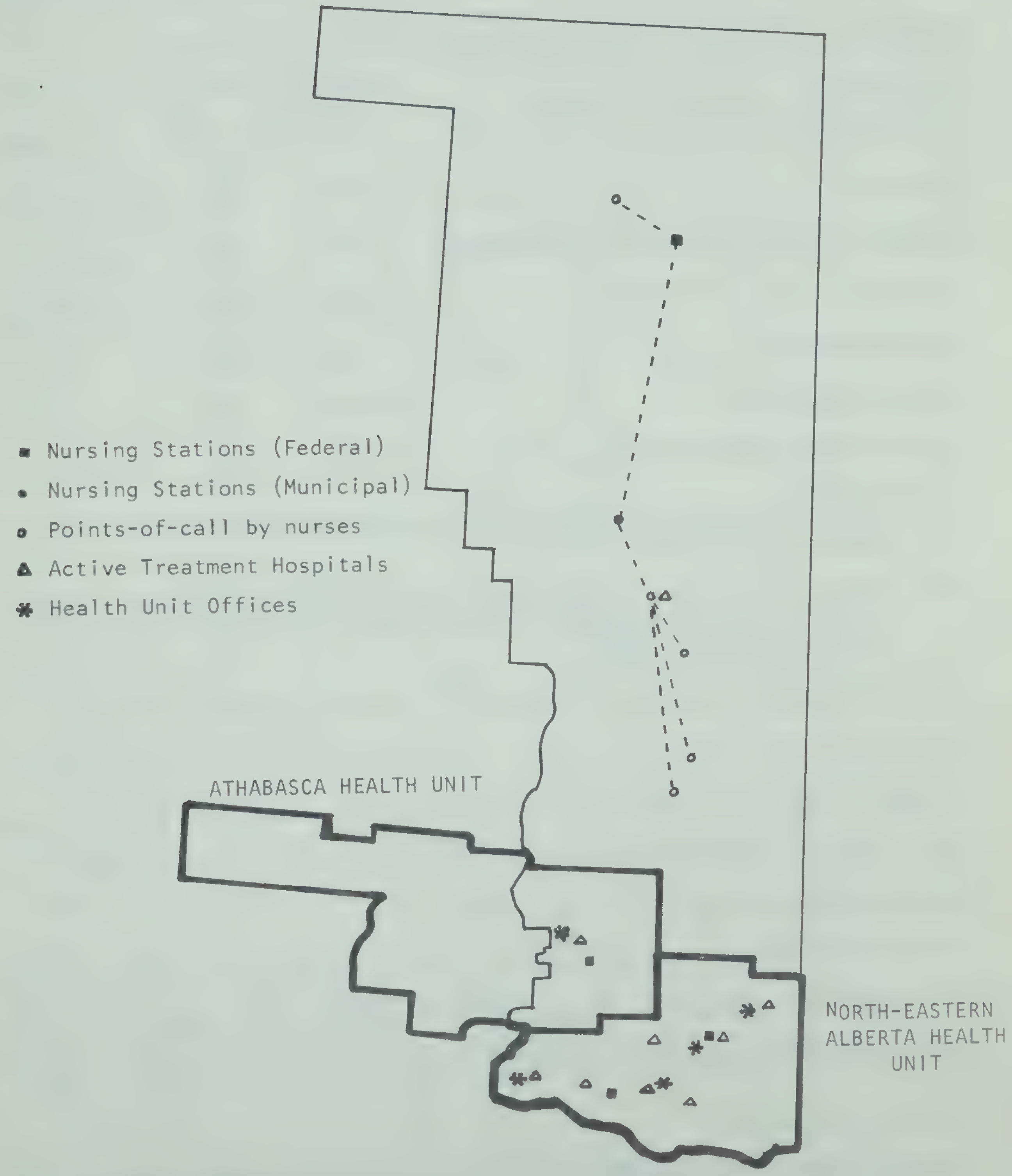
The incidence of selected diseases in C.D. 12 is compared with Alberta in Table Note that the occurance of whooping cough and infectious hepatitis is much higher in the North Eastern Health Unit, which is entirely in C.D. 12, than in Alberta.

The incidence of infectious hepatitis, gonorrhoea, dysentry, measles, scarlet fever and strep throat is much higher in the Athabasca Health Unit than in Alberta, but only a part of this health unit (I.D. 102) is in C.D. 12. The portion of this high rate contributed by C.D. 12 has not been determined.

1/ Vital Statistics Division; Annual Report, 1965, Alberta Department of Public Health, Edmonton, 1966.

2/ Includes only those people served by organized health units.

Figure 62 C. D. 12 HEALTH SERVICES [1/]


■ Nursing Stations (Federal)
● Nursing Stations (Municipal)
○ Points-of-call by nurses
△ Active Treatment Hospitals
✱ Health Unit Offices
ATHABASCA HEALTH UNIT
NORTH-EASTERN ALBERTA HEALTH UNIT

[1/] Department of National Health and Welfare; Annual Report Alberta Region, 1966, Medical Services Branch, Ottawa, 1967, and private communication, Edmonton Office, Special tabulations, Rural Development Research Branch.

Table 78 ILLNESSES DIAGNOSED PER 100,000 POPULATION - 1965[1/]

	Alberta	Athabasca Health Unit	North Eastern Health Unit
Syphilis*	14	--	15
Gonorrhoea*	238	344	77
Tuberculosis	24	38**	39**
Dysentry	21	104	24
Infectious Hepatitis (liver inflammation)	62	146	118
Measles	283	382	168
Whooping Cough	17	9	97
Rubella (Measles)	120	33	8
Scarlet Fever, Strep and Sore Throat	87	311	47

* Provincial rates were determined by using estimated population of Alberta as 1,451,000 persons.

** Based on a private communication with the Division of Tuberculosis control, Alberta Department of Public Health and Vital Statistics, and Annual Report, 1965.

The cause of infectious hepatitis is in human excrement and can be spread by direct contact with such excrement as well as through contact with someone who has the disease by drinking from the same glass, kissing, sneezing, etc. Dysentry, which is spread by flies, water, etc., is encouraged by inadequate garbage disposal and sanitation.

C.D. 12 has one hospital bed or crib per 149 people, whereas the average for Alberta is one bed per 170 people.[2/] A detailed comparison of hospital size and bed occupancy for C.D. 12 and Alberta is shown in Table page

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[1/] Alberta Hospital Benefit Plan; Annual Report, 1965, Edmonton, 1966. P. 165. These are reported cases only. There may be cases which are not reported.

[2/] Ibid (using 1966 population figures).

Table 79

HOSPITAL SIZE AND BED OCCUPANCY [1/]
ALBERTA AND C.D. 12 - 1965

	RATED CAPACITIES AND UTILIZATION					
	Beds and Cribs		Newborn Bassinets		Average Stay in Days	
	No.	% of Occupancy	No.	% of Occupancy	Adults/Children	Newborn
Cold Lake	27	76	8	39	6	7
Fort McMurray	19	92	4	39	6	7
Lac La Biche	68	77	14	26	7	6
Smoky Lake	25	66	6	23	7	7
St. Paul	75	74	18	27	7	7
Elk Point	51	87	7	43	7	7
Bonnyville	52	72	12	22	8	8
Glendon	8	127	7	3	13	7
Vilna	14	76	3	28	8	7
C.D. 12	339	*	79	*		
Alberta	8,618	78	1,570	39	9	7

* Figures not available.

Mental health programs in C.D. 12 concern themselves primarily with children who achieve poorly in school. These children are examined and sent to 'opportunity classes' if these classes are available. In addition, Child Guidance Clinics are held about every three months with an emphasis on the diagnosis of Parent-Child-School problems and serious mental breakdown. All seriously defective children are at these clinics for possible placement in Red Deer.

[1/] Alberta Hospitalization Benefit Plan; Annual Report, 1965, Edmonton, 1966, pp. 35-37.

A brief report prepared by the Northeastern Alberta Health Unit lists the following health problems in their area:

- need for persistent education of public in good health and sanitation practices, particularly on farms and in villages
- Tuberculosis continues to menace all age groups and is our most serious communicable disease
- family nutrition is poor due to low income, poor eating habits and uneconomical practices
- a large proportion of the population is not seeking treatment for treatable defects that later in life cause serious handicaps. This may change if medicare is introduced
- many pregnant women do not seek medical care during their prenatal period
- people are not making full use of preventive services, thus increasing the work of the staff unnecessarily and adding to the burden of social agencies and other institutions as people become unable to support themselves due to preventable health problems.

Some of these problems have been documented earlier but others have not. Another problem not listed above, is the problem of finding and keeping qualified staff for medical services.

Summary

At the present time there are 23 doctors in C.D. 12. This is a ratio of one doctor for every 2,202 persons. The Alberta average is one doctor for every 894 persons. The C.D. 12 ratio probably cannot be expected to be exactly comparable to the Alberta average because of the number of specialists located in cities which are included in the Alberta average. It would be desirable, however, to attempt to bring the C.D. 12 ratio closer to the Alberta average.

The following table shows the present C.D. 12 and Alberta situation:

Table 80 DOCTORS IN C.D. 12

Present number of doctors	23
Present population	50,635
Doctor/Population Ratio	1:2,202
Alberta Doctor/Population Ratio	1:894

C.D. 12 has four dentists to serve a population of 50,635. This is one dentist for every 12,659 persons. The Alberta average is one dentist for every 3,000 persons. This is summarized in Table 80.

Table 81 DENTISTS IN C.D. 12

Present number of dentists	4
Present population	50,635
Dentist/Population Ratio	1:12,659
Alberta Dentist/Population Ratio	1:3,000

C.D. 12 has one hospital bed for 149 persons. The rural Alberta average is one bed for 199 persons.

Table 82 HOSPITAL BEDS IN C.D. 12
1965

Total number of beds	339
Total population	50,635
Beds/Population Ratio	1:149
Rural Alberta Beds/Population Ratio	1:170

In 1965 there were 39 cases of tuberculosis per 100,000 population or an estimated total cases of 20. The Alberta average was 24 cases per 100,000 population.

Table 83 INCIDENCE OF TUBERCULOSIS IN C.D. 12

C.D. 12 Rate [1]	39:100,000
C.D. 12 Population	50,635
Estimated Cases	20
Alberta Average Rate	24:100,000

A similar situation can be illustrated for infectious hepatitis:

Table 84 INCIDENCE OF INFECTIOUS HEPATITIS IN C.D. 12

C.D. 12 Rate [2]	118:100,000
C.D. 12 Population	50,635
Estimated Cases	59
Alberta Average Rate	62:100,000

Projected Situation

The projected population on the basis of economic developments indicates that there will be 66,927 people in C.D. 12 by 1976.

If the present doctor to population ratio is maintained, then the requirements for doctors will rise by 7 to 30 by 1976. If the ratio were to rise to the Alberta average, then 75 doctors would be required, which is an increase of 52. As indicated previously, it is probably unreasonable to set the Alberta average as a goal for C.D. 12 so a reasonable goal would fall somewhere between the present C.D. 12 ratio and the present Alberta ratio.

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[1] The C.D. 12 rate was taken to be the same as that for the Northeastern Health Unit because the Athabasca Unit is only partly in the area.

[2] Ibid.

Table 85 ESTIMATED NUMBER OF DOCTORS REQUIRED IN C.D. 12

	Number Required	Change from 1965
At present C.D. 12 standards	30	+ 7
At present Alberta standards	75	+ 52

A similar method can be used to project the number of dentists.

Table 86 PROJECTED NUMBER OF DENTISTS REQUIRED IN C.D. 12 BY 1976

	Number Required	Change from 1965
At present C.D. 12 standards	5	+ 1
At present Alberta standards	22	+ 18

If the present disease rates are maintained until 1976, the present C.D. 12 bed/population ratio of 1 bed for every 149 persons will also need to be maintained. This will mean an increase of 110 beds to 449. If, however, the incidence of disease can be reduced to the rural Alberta level, then the Alberta bed/population ratio of 1 bed for 170 people would be reasonable. This would mean an increase of 55 beds to 394. This is summarized below:

Table 87 PROJECTED NUMBER OF HOSPITAL BEDS IN C.D. 12 BY 1976

	Number Required	Change from 1965
At present C.D. 12 level	449	+ 110
At present Alberta level	394	+ 55

The projected incidence of Tuberculosis and Infectious Hepatitis are shown in the table on the following page.

Table 88

PROJECTED INCIDENCE OF TUBERCULOSIS AND INFECTIOUS HEPATITIS C.D. 12 - 1976

	Estimated Cases	Change from 1965
Tuberculosis - C.D. 12 Rate	26	+ 6
- Alberta Rate	16	- 4
Infectious Hepatitis - C.D. 12 Rate	79	+ 20
- Alberta Rate	41	- 18

Programs

Programs in the field of health need to be directed to lowering the incidence of disease and to increasing the availability of medical services. The diseases common to the area are attributable in many respects to low levels of sanitation and inadequate diets which are in turn often attributable to low incomes. Other sections of this report deal with solutions to some of these problems. The problem of sanitation is discussed and a home improvement program is proposed in another section of the report. This section touches on a program to improve diets through programs involving home economists and home visitors. Another problem in the health field is the limited use that is made of the preventive health facilities in the area. A program using non-professional health workers could attack this problem. These non-professionals should be drawn from the local area and should receive a period of in-service training by professional health workers and perhaps some overlap into other disciplines. These workers could visit homes, encourage improvement in sanitation and diet, encourage use of preventive health services, and encourage pre-natal care and treatment of defects which may lead to major problems later in life. Because these people are drawn from the local areas, they should be able to improve communication between the professional workers and the local population. It is suggested that approximately 20 non-professional workers are required. The costs for this program are estimated in the section dealing with welfare.

There is also a need in C.D. 12 for more dentists and doctors. The chambers of commerce in the major centres should be encouraged to actively seek out and encourage the moves of appropriate personnel to C.D. 12.

WELFARE[1]

In this section, welfare will be considered as payments made to people who are unable to earn enough income to supply themselves and their dependents with the basic necessities.[2] In general terms, the welfare payments discussed here are classified as social assistance and social allowance. Social assistance is usually of a temporary nature and is paid to people who are not in the labour force because of social maladjustment or lack of training. Social allowance, on the other hand, is paid to people who cannot enter the labour force because of age or infirmity.

The estimated average case load and cost per month for both categories of welfare in C.D. 12 is shown below:

Table 89 WELFARE COSTS IN C. D. 12 [3]
(Excluding Native People on Reserves)

	Average Cases Per Month	Average Cost Per Case Per Month	Average Monthly Cost of Welfare Dollars	Per Cent
Social Allowance	114	$109	124,176	84
Social Assistance	291	$ 83	24,224	16
All Welfare	-	-	148,400	100

Although C.D. 12 has 3.4 per cent of Alberta's total population, it accounts for 5.4 per cent of all welfare payment in Alberta. The total welfare bill for the province in the fiscal year 1965-66 was about $24 for every man, woman and child in Alberta, but it was $36 per capita in C.D. 12. [1]

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[1] Welfare includes provincial payments in the following account numbers in the income account of the Alberta Department of Public Welfare: Numbers 2518, 2520, 2521, 2522, 2523, 2524, and 2525. Municipal welfare payments are considered as 20 per cent of the provincial grants to municipalities (Account No. 2518) and are added to this figure.

[2] The figures given in this section of the report do not include payments made by federal government agencies.

[3] Abstracts from records of the Alberta Department of Public Welfare, specially tabulated by Rural Development Research Branch.

Fifteen per cent of the welfare in C.D. 12 goes to people who are in need of short-term assistance. In the province as a whole, 13% of all welfare payments go to people in this category. The foregoing relationships are tabulated below.

Table 90 COMPARATIVE WELFARE COSTS [2]
ALBERTA AND C. D. 12 - 1965 - 1966

	C. D. 12	Alberta
Total Welfare Costs	1,780,807	34,666,289
Total Population	49,422[3]	1,443,944
Welfare Cost Per Capita	36.03	24.01
Per Cent of Alberta - Population	3.4	100.0
Per Cent of Alberta - Welfare Costs	5.4	100.0
Social Assistance as Per Cent of All Welfare	15.0	13.0

Climate, geography and work opportunities influence the number of welfare recipients in C.D. 12, in that work becomes more seasonal and less varied in the northern areas. Hence, the number of people receiving social assistance increases as one goes north in C.D. 12.

Child welfare is a problem in its own right in Alberta generally, and especially in C.D. 12. The problem of finding foster homes for children is a serious problem in Alberta [1], and the figure below shows that C.D. 12 contributes proportionately more than its share of children who may need foster home placement. [2]

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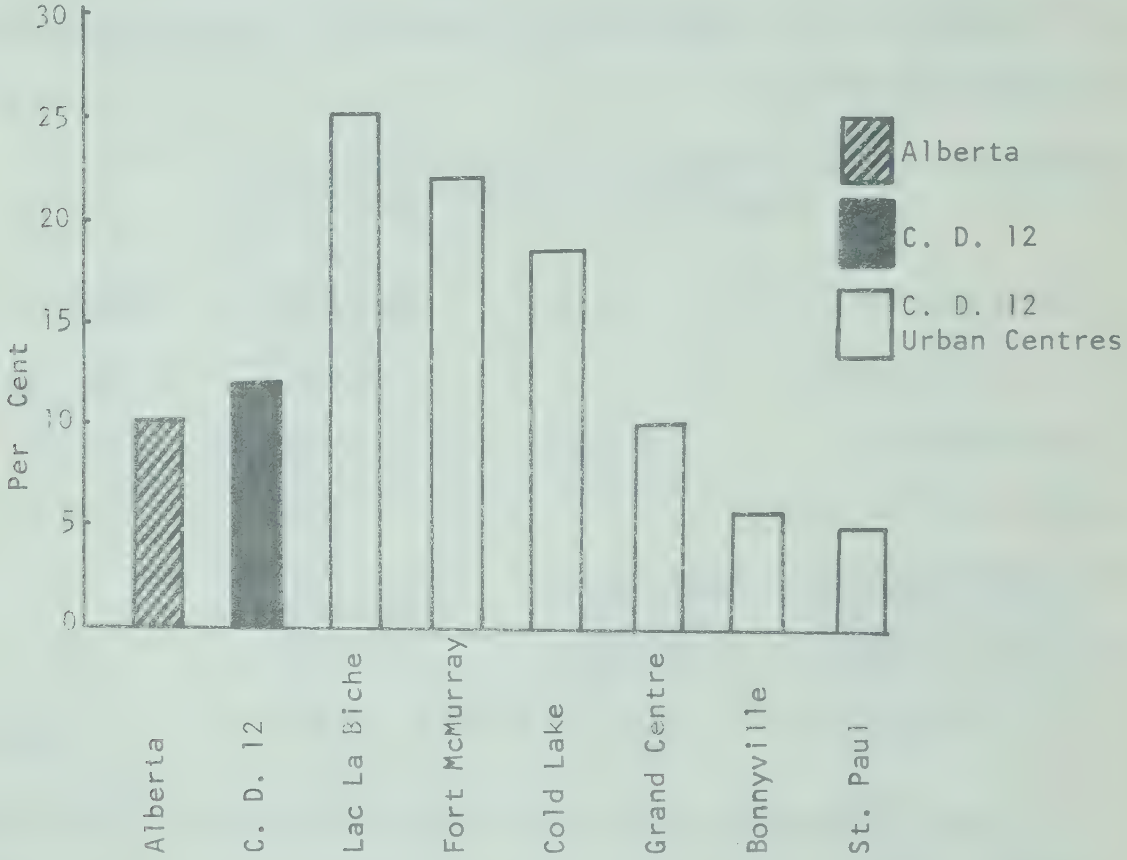
[1] The population figures for C.D. 12 and Alberta do not include the native population. The welfare costs do not include federal payments to the native population.

[2] Abstracted from Department of Public Welfare records and specially tabulated, Rural Development Research Branch.

[3] Taken from Department of Municipal Affairs estimates for 1965.

Figure 63 ILLEGITIMATE BIRTHS [3]
AS A PERCENTAGE OF TOTAL BIRTHS - 1965



Two communities in C.D. 12, Fort McMurray and surrounding area and the Lac La Biche area which includes all of I. D. 102, are participating in a new concept of welfare called preventive social services. The idea of preventive social services is similar to the concept of preventive medicine. Where preventive medicine is designed to strengthen one's defences against disease, preventive social services emphasize programs of preventing social problems instead of rehabilitating people who are involved in such problems. Programs associated with this type of service could be family counselling and 'head start' programs (programs for pre-school children which prepare them for school experience). A preventive social service program in conjunction with development in education, employment opportunities and other fields is the key to reducing welfare costs.

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[1] Alberta Department of Public Welfare; Annual Report, 1965-66, Edmonton, 1966.

[2] Many children come into care of Department of Welfare because of family breakdown. Illegitimate births are only one measure of potential need for foster homes.

[3] Department of Public Health; Annual Report, 1965, Vital Statistics Division, Edmonton, 1966. p. 14, 16.

Public Assistance to Native People on Reserves

Welfare given to native people on reserves is handled through the Indian Affairs Branch of the Government of Canada. The figures presented in this section of the report are applicable only to the category of payment referred to as public assistance. Although many of the figures used are estimates, these estimates should give a reasonably accurate picture of the public assistance situation on Indian reserves in C. D. 12. 1/

In the 1964-65 fiscal year, it is estimated that $451,044 in public assistance was given to Indians in C. D. 12. This is an average of $96.97 paid to each of the 4,651 persons who made up the total population of C. D. 12 reserves. As shown in Table 91, this amount had decreased to an average of $94.37 by 1966-67 in spite of an increase in the total amount expended. In C. D. 12, 64.4% of the Indians resident on reserves were receiving public assistance, compared to 42.7% for Alberta and 38.5% for Canada. This relationship is shown in Table 92. In the census division,

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1/ The figures used in this section of the report were obtained from Indian Affairs Branch, Canada Department of Indian Affairs and Northern Development. Since the boundaries of their administrative districts are not exactly coterminous with the boundaries of C. D. 12, estimates were made to approximate boundaries as closely as possible.

9.8% of the reserve population were employable and receiving assistance, compared to 7.0% in Alberta and 6.5% in Canada.

Table 91 PUBLIC ASSISTANCE TO INDIANS IN C. D. 12 [1]

	Estimated Indian Population	Estimated Public Assistance	Public Assistance Per Person
C. D. 12 - 1964-65	4,651	$ 451,044	96.97
- 1966-67	5,510	520,000	94.37
Alberta - 1966-67	25,549	1,736,460	67.97

Table 92 RESIDENT INDIAN POPULATION ON RELIEF [2]
1965

	%	No.
C. D. 12	64.4	2,997
Alberta	42.7	8,667
Canada	38.5	62,675

Table 93

INDIAN ADULT RESIDENTS WHO WERE EMPLOYABLE AND RECEIVED ASSISTANCE
1965 [3]

	No.	% of Total Residents
C. D. 12	455	9.8
Alberta	1,423	7.0
Canada	10,525	6.5

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[1] Abstracted from records of Indian Affairs Branch. (unpublished)

[2] Ibid.

[3] Ibid.

Summary

The welfare problems in Census Division 12 are proportionately greater than Alberta generally. It is estimated that the provincial and municipal governments spend approximately $1,780,807 for social allowance and social assistance. This is an expenditure of $36.00 for every person in the area. The Alberta average is $24.00 per person. These figures are summarized in the following table.

Table 94 WELFARE REQUIREMENTS, C.D. 12 - 1965

Estimated Social Allowance and Social Assistance	$1,780,807
Present Population (Municipal Affairs 1965 Estimates)	49,422
Welfare Expenditure Per Person	$36.03
Alberta Expenditure Per Person	$24.01

At the present time (1966) there are 23 provincial social workers in C. D. 12. This is a ratio of one social worker to every 2,202 persons. The Alberta average is one social worker for every 5,542 persons. These figures are summarized below:

Table 95 SOCIAL WORKERS IN C. D. 12 - 1966

Number of Provincially Employed Social Workers	23
Present Population (1966 Census of Canada)	50,635
Population Per Social Worker	2,202
Alberta Population Per Social Worker	5,542

In 1965 in C. D. 12, there were 1,386 births and 170 of these were illegitimate. Thus 12.27% of all the births were illegitimate. The comparable rate for Alberta is 9.79%. However, the Alberta rate has been increasing more rapidly since 1961 than has the C. D. 12 rate.

Table 96 ILLEGITIMATE BIRTHS - C. D. 12 - 1965

Total Number of Births	1,386
Number of Illegitimate Births	170
Percent Illegitimate	12.79
Alberta Percent Illegitimate	9.79

In 1964-65, it is estimated that the average public assistance expenditure made to native people on reserves was $96.97 per person. In this same year 64.4% of residents on reserves were receiving welfare assistance and 9.8% of the residents were employable and receiving assistance.

Population projections made on the basis projected economic developments indicate that there will be 66,927 people in C. D. 12 in 1976.

In the past few years, the population of Indian reserves has grown at the rate of 4.42% per year. If this rate is applied to the 1967 C. D. 12 Indian reserve population of 5,510 and is projected at this rate until 1976 then the resulting populations is 8,128.

If this present rate of expenditure on welfare by provincial and municipal authorities is continued to 1976, then expenditures will rise to $2,411,380 from the present $1,780,807. This is an increase of $630,573. If welfare payments can be reduced to the present Alberta rate, then expenditures can be reduced by $173,890 to $1,606,917. These figures are shown below:

Table 97 WELFARE REQUIREMENTS BY 1976 IN C. D. 12

	Total Amount	Change From 1966
At Present C. D. 12 Standards	$2,411,380	+$630,573
At Present Alberta Standards	$1,606,917	-$173,890

At the present time there are 23 social workers (provincial field workers) in C. D. 12. If the present C. D. 12 population to social worker ratio is carried to 1976 the area will require 30 social workers. If the ratio could be reduced to the present Alberta ratio, then only 12 social workers would be needed. (See Table below.)

Table 98 SOCIAL WORKER REQUIREMENTS IN C. D. 12 FOR 1976
(PROVINCIAL FIELD WORKERS ONLY)

	Total Required	Change From 1966
At Present C. D. 12 Population/Social Worker Ratio	30	+ 7
At Present Alberta Population/Social Worker Ratio	12	-11

In 1965, there were 170 illegitimate births in C. D. 12 and this is 12.27% of all births in that area. In Alberta in the same year, 9.79% of all births were illegitimate. If the C. D. 12 rate is maintained to 1976 then in that year there will be 222 illegitimate births which is an increase of 52. If the C. D. 12 rate can be reduced to the present Alberta rate by 1976, then the number of illegitimate births will increase by 7 to 177. However, the trend is for the rate to rise and the Alberta rate is rising faster than the C. D. 12 rate. If the 1961-65 trend is projected to 1976 then in that year the C. D. 12 rate will be 16.37% and the Alberta rate will be 16.89%. The number of illegitimate births in C. D. 12 using these rates will be 296 and 305 respectively.

Table 99 PROJECTED ILLEGITIMATE BIRTHS IN C. D. 12 IN 1976*

		No. of Illegitimate Births	Change From 1966
At Present C. D. 12 Rate	(12.27%)	222	+ 52
At Present Alberta Rate	(9.79%)	177	+ 7
At Projected C. D. 12 Rate	(16.37%)	296	+126
At Projected Alberta Rate	(16.89%)	305	+135

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* Illegitimate births are calculated by applying the present C. D. 12 birth rate of 27.74 per 1000 to the projected C D. 12 population and then applying the appropriate illegitimate rate.

The projected population of Indian reserves in C. D. 12 is 8,128. If the 1964-65 rate of public assistance payments is applied to this population then the expenditure for public assistance will rise by $337,128 to $788,172. If the rate of payments can be reduced by 1976 to the 1964-65 Alberta average then the expenditure for this type of welfare will rise by $101,416 to $552,460. These relationships are shown below:

Table 100 PROJECTED PUBLIC ASSISTANCE PAYMENTS TO RESIDENTS OF INDIAN RESERVES, C. D. 12 - 1976

		Total Payments	Change From 1965
1964-65 Payment Rate	($96.97)	$788,172	+ $337,128
1966-67 Payment Rate	($94.36)	$767,029	+ $315,995
1966-67 Alberta Payment Rate	($67.97)	$552,460	+ $101,416

In February 1965 there were 2,997 persons receiving public assistance on C. D. 12 reserves. If this same rate of 64.4% is maintained until 1976 then there will be 5,234 receiving assistance. This is an increase of 2,237 persons over 1965. If the rate can be changed to the present Alberta average, by 1976, there will be 3,471 persons on C. D. 12 reserves receiving public assistance. Table shows additional details.

Table 101 PROJECTED NUMBER OF PERSONS RECEIVING PUBLIC ASSISTANCE C. D. 12 RESERVES - 1976

		Total Number	Change From 1965
At Present C. D. 12 Rate	(64.4%)	5,234	+ 2,237
At Present Alberta Rate	(42.7%)	3,471	+ 474
At Present Canada Rate	(38.5%)	3,129	+ 132

In February 1965, there were 455 residents on C. D. 12 reserves who were employable but receiving assistance. Employable is defined as 'capable of accepting reasonable work for reasonable wages'. If the present C. D. 12 rate of employables on assistance is maintained then by 1976 there will be

797 persons in this category. This is an increase of 342. If the rate can be changed to the present Alberta average then there will be 569 employable persons receiving public assistance by 1976. (See Table below)

Table 102 PROJECTED ADULT RESIDENTS WHO ARE EMPLOYABLE AND RECEIVING ASSISTANCE - C. D. 12 RESERVES - 1976

		Total Number	Change From 1965
At Present C. D. 12 Rate	(9.8%)	797	+ 342
At Present Alberta Rate	(7.0%)	569	+ 114
At Present Canada Rate	(6.5%)	528	+ 73

Programs

Welfare programs can be classified under four major headings. These are:

1. "Crutch" or maintainance programs
2. Rehabilitation programs
3. Socialization programs
4. Programs which involve 'changing the rules' of entry into various careers

Each of these categories of programs will be discussed in turn:

'Crutch' programs are designed to help individuals with some continuing problem. Examples of 'crutch' or maintainance programs are: aid to dependent children, disability pensions, social assistance, and social allowance. Because of the lack of availability of other types of programs, maintainance programs have often been used to replace them. Such programs have served a 'caretaker' function for the 'victims' of social change and have tended to treat these 'victims' as if they had some continuing personal inadequacy. This treatment sometimes tends to create an institutional dependency among welfare recipients. Income maximums for eligibility have tended to create a negative incentive for income improvement as has the practice of deducting total earnings from welfare assistance. Perhaps some sliding scale of deductions would help to aid this incentive.

Rehabilitation programs are those programs involving re-education or retraining and counselling. Retraining and educational upgrading programs are available from several sources. The Federal Department of Manpower operates programs which will pay living allowances and tuition for upgrading and vocational and technical training for people desiring to enter a trade. Assistance of this type is also available from the Vocational Education Branch of the Alberta Department of Education. There are plans underway by the recently formed Alberta New Start Corporation to build a vocational education facility in C. D. 12. This aspect of retraining seems to be adequately provided for. It is estimated that some 2,560 residents of C. D. 12 will need upgrading and retraining.

Although there seems to be adequate provisions for facilities and programs for retraining, there is a definite lack of counselling services. If all of the people who are potentially in need of retraining are to be brought into the program, then there will need to be programs designed to bring these people into the retraining situation. Part of this supplementary program must be a counselling service directed toward motivating prospective candidates for retraining and toward assessing their abilities and capacities. All of the above people will require counselling. It is suggested that counselling for all retraining programs be handled by one office and that after needs and capacities have been determined, the appropriate retraining service should be called upon.

Table 103 COST FOR COUNSELLING

Total Number of People -	Agriculture	434
	Indian Ancestry	932
	Others	644

General and Motivational Counselling - 2 counsellors @ $15,000 = $30,000/yr.

Total cost for Counselling (10 year program) = $300,000

Socialization programs include pre-school programs, family life education programs and home visitor programs. These types of programs could be developed under the present Preventive Social Services legislation. Pre-school programs have been discussed in the section of the report dealing with education. Family life, education and home visitor programs have been referred to in the education section under the heading of "Family Involvement". Family life education courses could deal with a wide variety of topics from education to value conflicts of growing children. Home visitor programs should be designed to reach those people who are not likely to be reached by conventional means, i.e. meetings or courses. These people are primarily concentrated in the part of the population that could be called poor.

People with lower incomes tend to participate less in community activities than their more affluent neighbours and are not likely to become involved in family life education, upgrading, retraining, leadership or other programs without some additional motivation. (See: Svenson, K. A.; Social Values of Low-Income Rural Families in C. D. 12, Rural Development Research Branch, Alberta Department of Agriculture, 1967.) This additional motivation could be partially provided by home visitors. Home visitors should be local people, trained by a multi-discipline team of professionals and should be paid for their work. They should have some knowledge of education, home management, nutrition, health, social problems, and the programs of assistance that are available in each field. The training team should, then, include people from the fields of education, health, welfare, home economics, and others as the needs of the area dictate. The emphasis of the program could be changed as needs and facilities change. The home visitors are part of the "New Careers Program", discussed below.

Estimated Costs

Family Life Education

Home Visitors - Assuming 40 full-time home visitors per year

Training Course	$ 21,800.00
Salaries of Home Visitors - $4,000/year	$160,000.00
Transportation @ 400	$ 16,000.00
Total Per Year	$197,800.00

The family life education program is also discussed briefly in the section dealing with adjustment needs in agriculture. It is anticipated that this program will also require four professional family counsellors. These counsellors are to be directly in charge of administering the home visitor program although the training and counselling of these home visitors should be done by a multi-disciplinary team. The costs for these professional family counsellors would be $15,000 a year each for a total for ten years of $600,000.

New careers programs involve changing the traditional rules of entry into some of the human services occupations, such as the fields of health, education, and welfare and perhaps some others. People should be allowed to enter these fields with a very minimum of education and should be given enough orientation or in-service training to allow them to function at a minimum level. As proficiency at one level is achieved, additional training could be injected to raise standards to another level. Training and experience would be simultaneous and the training would be meaningful becuase of its immediate application. The home visitor program discussed above and the teacher aid program discussed in the education section of this report are programs which fit the heading of "New Careers".

Another 'new careers' area is in welfare where there could be non-professional social and health workers. These people could be used to bridge the cultural gap between the essentially 'middle class' - oriented social workers or public health workers and the essentially 'lower-class' people who need their services.

Table 104

ESTIMATED COSTS
HEALTH & WELFARE WORKERS

Non-Professional Social Workers @ approximately 2 per professional.	40
Salaries @ $4,000	$160,000
Training @ $300/worker	$ 12,000
Travel	$ 16,000
Total	$188,000
Non-Professional Health Workers @ approximately 2 per health nurse.	20
Salaries @ $4,000	$ 80,000
Training @ $300/worker	$ 6,000
Travel	$ 8,000
Total	$ 94,000

FAMILY HOUSING

The conditions of homes in C. D. 12 are outlined in the following two tables:

Table 105 FARM HOME FACILITIES AND EQUIPMENT [1/]

	Bonnyville	Smoky Lake	Lac La Biche	St. Paul	Total Number	% of Total Reporting
Lighting						
Electric	54	41	33	56	195	81
Gas Mantle	11	7	10	12	40	17
Coal Oil	1	2	3	1	7	2
Heating						
Wood & Coal	29	25	26	32	112	46
Oil & Propane	37	28	20	49	134	54
Running Water						
No.	43	43	36	42	164	70
Yes	23	10	9	39	81	30
Washing Machines						
No	10	11	5	8	34	14
Yes	56	42	41	73	212	86
Refrigerator						
No	17	16	17	14	64	26
Yes	48	37	29	67	181	74
Freezer						
No	23	20	19	14	76	31
Yes	43	33	27	67	170	69
Television						
No	22	23	27	10	92	37
Yes	44	30	19	61	154	63
Telephone						
No	51	46	41	39	177	72
Yes	14	7	5	42	68	28

[1/] The results of a survey conducted by the Rural Development Research Branch, Economics Division, Alberta Department of Agriculture in 1966, included 247 farmers in the census division. (unpublished data)

Table 106 HOUSING CHARACTERISTICS[1]

	C. D. 12	Alberta
Total dwellings	10,729	349,809
Owned	76.0%	71.0%
Mortgaged dwellings	9.8%	49.2%
Needing major repairs[2]	19.4%	7.8%
Average Rooms	4.3	4.9
Persons per household	4.2	3.7
Furnace heating	34.3	71.9
Running water	32.1	78.6
Flush toilet	25.9	66.8
Bath or shower	27.1	69.4
Mechanical refrigerator	57.1	87.5
Home freezer	29.2	29.7
Television	29.7	71.7

A comparison of family dwelling conditions in C. D. 12 and the province is shown above. A survey of 247 farm operators in C. D. 12, conducted by the Provincial Economics Division in 1966, corroborates the census data.

Housing and home equipment standards in C. D. 12 are far below the Alberta average in every respect except home freezers which are almost equal.

Housing improvements involve purchase of durable goods and long-term investments. Since capital requirements for the improvement of farm family income and for farm operations are large, farm families are expected to encounter considerable difficulty in correcting the housing lag. In Alberta 49% of the dwellings are mortgaged: in C. D. 12

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[1] Canada Department of Trade and Commerce; Housing in Canada, Census of Canada, Bulletin 7.2-4, Dominion Bureau of Statistics, 1961. Table 8.

[2] Includes sagging or crumbling foundations, faulty roofs or chimney, faulty window frames or general deterioration inside. Some unfit for occupancy.

10% are mortgaged.

An expanded home loan and home financing program is required, along with grant incentives to hasten essential home improvements and to correct the lag in home development.

Since 20% of the homes are in need of major repair and there are 10,729 dwellings, it will be necessary to construct or do major repairs on 2,050 homes.

In addition, approximately 70% of the homes or 7,500, need running water; 19% or 2,000 need electric lighting; and 72% or 7,700 lack telephones. Approximately 6,800 homes need furnace heating.

Capital requirements for major home improvement needs follow:

2,000 homes built or major repair @ $12,000	$24,000,000
6,000[1/] *8,679 x 70%) homes water and septic tanks installations @ $3,000	$18,000,000
1,735 homes electric lighting @ $1,000	$ 1,735,000
2,000 homes furnace heating @ $1,000	$ 2,000,000
Total	$45,735,000

Alberta Government Telephones now installs farm telephones for $5.00 per farm in planned areas. Most of C. D. 12 farmers will have telephones by 1970.

An effective home imporvement program requires an educational component which would deal with various phases and topics such as materials, utility and buymanship, interior design and decorating, as well as other skills which make for comfortable living.

[1/] All figures are reduced by 2,000 homes which are new or have had major repairs as shown in the first item.

The ten-year home improvement extension program for rural areas of C.D. 12 is estimated to cost $10,000 - 10 years = $100,000.

Farm dwellings will constitute approximately 35% of the total dwellings in the census division. Hence, it may be assumed that the capital requirements for rural dwellings to be built or undergo major repair will be $8,400,000 plus $100,000 for extension education or a total of $8,500,000. This is a conservative estimate since there has generally been a lag in housing development in rural areas when compared with housing development in urban areas.

There will be an additional requirement in new housing due to an increase in total population. (A 16,000 increase is projected for 1976.) Currently, (1966 census) the average number of members per Alberta household is 3.6. If it is assumed that the average household in C.D. 12 will have 4.0 persons, then 4,000 new homes will be required. At the rate of $14,000 per unit, the total expenditure for additional housing would be $56,000,000.

Most of the new houses will be needed in the Fort McMurray area.

A total of 3,700 farm families are projected for 1976, which is a drop of over 400 families from 1966. The percentage of rural to total dwellings in 1976 will be 24%. (3,700 out of 14,729). The rural housing needs will total 25% of the $46,000,000 or $11,500,000 which will be required for rural housing will not be reduced since there are indicators which show that rural housing is poorer than average in the census division.

RURAL ROADS

A rural road study indicates estimates of the following capital requirements for needed roads in the region.

Cost of Roads:[1/]

Smoky Lake County 13	$ 3,557,600
I. D. 102	$ 4,159,000
County of St. Paul, County No. 19	$ 5,263,000
M. D. Bonnyville	$ 3,235,000
I. D. 101) I. D. 85)	$ 2,479,000
	$18,694,000

[1/] Underwood McLellan & Assoc. Ltd.; Secondary Road Study, County of Smoky Lake No. 13; County of St. Paul No. 19; Improvement District No. 102; (three studies) Studies for: Government of the Province of Alberta, Department of Highways, Highways Building, 97 Ave. and 106 St., Edmonton, (Jan. 1966, Mar. 1967).

and

W. J. Francl & Assoc. Consulting Engineering Ltd.; Report, Secondary Road Study for M. D. No. 87 - Bonnyville, Improvement District No. 101, Improvement District No. 85; Study for: Secretary Treasurer, Municipal District of Bonnyville No. 87, Bonnyville, Alberta, Mar. 1967.

MUNICIPAL FINANCE IN C. D. 12
(Towns and Villages Only)

Summary

Taxes in C. D. 12 are about 10 mills higher than in other towns and villages in Alberta. In several municipalities cash reserves ran out in 1967 and temporary loans were needed to pay bills.

Fortunately, in all but two municipalities, taxable property values are increasing, or budgets have low fixed costs, (leaving a fair portion of their budgets uncomitted and therefore reducible). These two factors; economic growth and budget control, make it possible for municipalities to balance their budgets in the long run.

Introduction

There are 17 municipal units in C. D. 12, of which 14 are towns and villages, two are counties and one is a municipal district. There are also 6 improvement districts in C. D. 12. This section will discuss only the towns and villages of C.D. 12.

This study is concerned with tax rates, solvency (whether municipalities can pay their bills) and how they can balance their budgets in the long run. Numerical values which are helpful in this study are given in tables, along with comparable figures for Alberta where these are deemed useful.

Tax Rates

Almost all of the towns and villages of C. D. 12 have very high taxes, averaging about 10 mills higher than elsewhere in Alberta. 1/ The direct cause of high tax rate is, of course, high expenditures relative to tax base. In C. D. 12, taxable property values are well below the provincial average. 2/

1/ See Table 109, Col. 4.

2/ See Tables 107, 111.

As the following table shows, there is not a clear relationship between the value of taxable property and what a municipality spends. It seems, then, that the needs and desires of municipalities often determine their levels of spending.

Table 107 EXPENDITURES AND PROPERTY VALUES PER CAPITA

	Municipal Assessments In $ Per Capita	Operating Expenditures In $ Per Capita			
		Spent Locally Variable	Fixed	Provincial Requisitions Fixed	Total In $
Bonnyville	1240	36	71	37	144
Cold Lake	990	25	33	29	87
Elk Point	1330	22	85	37	144
Ft. McMurray	1140	30	106	27	163
Grand Centre	980	23	79	28	130
Lac La Biche	1190	35	93	36	164
St. Paul	1480	45	47	43	135
Smoky Lake	1460	30	94	42	172
Bonnyville Beach	-	-	-	-	-
Glendon	1190	11	114	34	159
Plamondon	1000	21	46	29	96
Vilna	1280	48	72	38	158
Warspite	2020	33	100	61	194
Waskatenau	1340	21	97	41	159
Alberta Towns & Villages	1440	33	67	38	138

Solvency

The solvency of municipalities, (i.e. their ability to pay their bills as they fall due) in C. D. 12 is listed in Table 3 Col. 1. Also listed, are a few municipalities which had to borrow money to pay their bills at the year-end of 1967.

1/ Alberta D.M.A.; Annual Report, 1966. Audited financial statements of towns and villages (1967).

Among those municipalities which had operating debts, the new town of Fort McMurray had the largest debt ($483,000). However, its debts were supervised and are guaranteed by the provincial government; they will, eventually, be paid for by debentures, after the town becomes more established.

The village of Glendon and the town of Grand Centre also had to borrow money to pay their bills in 1967. Since they are not new towns, they can not pay off their debts by debenture financing. The full amount of these debts comes due during the year, and must be paid in full, even if more loans have to be made to pay them.

Glendon's debt is small and can be easily paid, while Grand Centre's operating debts may be difficult to pay in one year. How these municipalities might change their budgets to pay their debts is illustrated in the table following:

Table 108 BUDGET CHANGES FOR DEBT REDUCTION [1/]

	Glendon	Grand Centre
Temporary Debts Payable Dec. 31, 1967.		
Principal	2,000	40,000
Interest at 6%	-	2,000
Total debts payable	2,000	42,000
Less natural increase in levy due to increasing assessments [2/]	3,000	9,000
Payable (or surplus net of natural levy increase	(1,000)	33,000
Less 25% of all tax arrears		11,000
Less 50% reduction in variable costs		19,000
Les 2 - mill increase on present assessment		4,000
Total budget adjustments		34,000
Payable (or surplus) Dec. 31, 1968		1,000

[1/] Tables 109, 110.

[2/] The municipal assessment is assumed to continue increasing at the same rate as all property values (including government property) increased from 1965-1967. Present total mill rates are applied to this assumed increase.

Table 109

SELECTED FINANCIAL INFORMATION FOR 1967 [1]

See Note Nos.	1		2	3	4	5			
	Cash Surplus (or Debt)		25% of all Tax Arrears	50% of Average Variable Costs (1965, 66, 67)	Tax Value of a 10-Mill Levy	Average Taxes Each $1000 of Property			
						Prov. Taxes	Local Taxes		Total Taxes
C. D. 12	As a % of the Levy	In $000	In $000	In $000	In $000	$	Frontage $	Others $	
Bonnyville	3	5,000	7,000	33,000	29,000	30	9	30	69
Cold Lake	40	37,000	11,000	14,000	13,000	29	9	35	73
Elk Point	104	82,000	4,000	10,000	10,000	28	9	39	76
Ft. McMurray [2]	172	(483,000)	31,000	48,000	39,000	23	3	47	73
Grand Centre	24	(40,000)	11,000	19,000	19,000	29	19	35	83
Lac La Biche	57	89,000	10,000	23,000	19,000	30	6	46	82
St. Paul	4	12,000	19,000	76,000	57,000	29	4	27	60
Smoky Lake	-	-	3,000	12,000	13,000	28	17	30	75
Bonnyville Beach	72	3,000	-	-	1,000	34	-	19	53
Glendon	5	(2,000)	7,000	4,000	4,000	28	27	51	106
Plamondon	58	8,000	1,000	1,000	2,000	29	-	41	70
Vilna	50	19,000	1,000	7,000	5,000	30	10	39	79
Warspite	73	14,000	2,000	2,000	2,000	30	10		80
Waskatenau	23	1,000	3,000	2,000	4,000	31	8	39	78
Alberta (1966)									
All Towns	14					26	7	34	67
All Villages	51					28	9	30	67
Towns & Villages	22					27	7	33	67

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[1] Audited financial statements for 1967 and D.M.A. Annual Report.

[2] New town.

The above table shows that several choices face a municipalities wanting to improve their cash positions. Any or all of the choices listed might be used over a period of one year or longer.

Municipalities in Fair Condition

The towns of Bonnyville and St. Paul, and the village of Plamondon were able to pay for all of their bills and had some cash in reserve at the end of 1967. 1/ Taxes are at reasonable levels. 1/ Their budgets contain low fixed costs (such as debenture payments and supplementary requisitions), leaving larger protions of their budgets uncommitted. 2/ This is important, since taxable property values in Bonnyville, St. Paul and Plamondon have not been growing rapidly, 3/ and additional services could be financed by dropping some items from the budget, rather than being financed entirely by higher taxes.

Municipalities in Difficulty

Other municipalities are in more difficult positions. For example, the village of Glendon has 93% of its budget committed to expenditures which can not be reduced much from one year to the next. 4/ The average total tax levy (including frontage charge) is equal to 106 mills, and uncollected taxes could amount to 2/3 of a year's tax revenue. 5/ All of Glendon's bills in 1967 could not be paid, so some temporary debts remained at the end of the year. 6/

1/ See Table 109, Col. 1, 5.

2/ See Table 110, Col. 5.

3/ See Table 110, Col. 4.

4/ See Table 110, Col. 5.

5/ See Table 110, Col. 1, 3.

6/ See Table 109, Col. 1.

Taxes in Grand Centre were also very high. Unpaid bills equaled 1/4 of a year's tax revenues, while unpaid taxes amounted to 29% of its total levy. [1]

Fortunately taxable property values have been increasing fairly rapidly in Glendon and Grand Centre, bringing in added tax revenues equal to about 5 - mills annually. [2] Grand Centre had a fair portion of its budget in 1967 as yet uncommitted to fixed expenditures into the future. [3]

Therefore if property values continue to increase as they have in the past, and expenditures are controlled or decreased, both Glendon and Grand Centre could pay their temporary debts and also accumulate cash surpluses.

Each of the towns and villages in C. D. 12 have financial problems of one type or another to some degree. The tables and examples in this report illustrate how several conditions can combine to put a municipality in a strong position or a weak position, and the each municipality can use different approaches to strengthen its financial position.

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[1] See Table 109, Col. 1 and Table 110, Col. 1, 3.

[2] See Table 110, Col. 2, 4.

[3] See Table 110, Col. 5.

Table 110

SELECTED FINANCIAL INFORMATION - 1967

See Note. Nos.	1		2	3	4	5	
	All Taxes In Arrears		Revenue from 10% Increase In Municipal Assessment	Average Total Tax on $1,000 of Municipal Assessment	Average Annual Increase of $100 of Equalized Assessment (1965-1967)	Operating Costs in 1967	
C. D. 12	As a % of Present Levy	In $000	In $000	In $	In $ or %	Fixed (%)	Variable (%)
Bonnyville	15	30,000	19,000	69	2.00	75	25
Cold Lake	46	43,000	9,000	73	-	79	21
Elk Point	22	18,000	8,000	76	4.00	85	15
Ft. McMurray	45	125,000	4,000	73	55.00	82	18
Grand Centre	29	45,000	15,000	83	6.00	82	18
Lac La Biche	26	41,000	16,000	82	8.00	79	21
St. Paul	22	75,000	34,000	60	-.50	67	33
Smoky Lake	13	12,000	10,000	75	1.00	83	17
Bonnyville Beach	16	1,000	-	56	5.00	96	4
Glendon	67	30,000	4,000	106	6.50	93	7
Plamondon	39	5,000	1,000	70	2.00	64	36
Vilna	14	5,000	4,000	79	1.00	70	30
Warspite	33	6,000	2,000	80	1.50	83	17
Waskatenau	37	11,000	3,000	78	.50	87	13
Alberta							
All Towns	27			67	5.00	75	25
All Villages	42			67	1.00	81	19
Towns & Villages	30			67	4.00	76	24

Table 111

SELECTED FINANCIAL INFORMATION FOR 1967

	1	2	3		4
	Total Levy In $000	Operating Expenditures In $000	Municipal Assessments In $000	In $ Per Capita	Equalized Assessments In $000
Bonnyville	198,000	334,000	2,880,000	1,240	2,725,000
Cold Lake	94,000	149,000	1,278,000	990	1,178,000
Elk Point	79,000	112,000	1,030,000	1,330	952,000
Ft. McMurray	281,000	554,000	3,858,000	1,140	3,589,000
Grand Centre	155,000	246,000	1,854,000	980	1,724,000
Lac La Biche	157,000	264,000	1,911,000	1,190	1,925,000
St. Paul	338,000	522,000	5,693,000	1,480	5,242,000
Smoky Lake	95,000	150,000	1,272,000	1,460	1,127,000
Bonnyville Beach	4,000	4,000	71,000	-	77,000
Glendon	44,000	56,000	417,000	1,190	377,000
Plamondon	14,000	19,000	200,000	1,000	192,000
Vilna	39,000	61,000	493,000	1,280	466,000
Warspite	19,000	22,000	231,000	2,020	218,000
Waskatenau	29,000	45,000	379,000	1,340	360,000
Alberta, 1966:					
All Towns				1,480	
All Villages				1,320	
Towns & Villages				1,440	

Notes to the Columns in Table 109

1. A cash surplus or cash debt is the difference between the ready cash of a municipality and the bills that will come due in the near future.

   In a technical sense it is the difference between cash assets and cash liabilities. Cash assets include the bank balance, short term investments, accounts receivable, and money owing from other government bodies. Cash liabilities include bank overdrafts and temporary loans, accounts payable, debenture payments due, and other debts already due to other municipalities, the province, or the federal government.

2. As a general estimate, a municipality which tried to improve its position by collecting all outstanding taxes could probably collect about 25% of the arrears. These collections,could, then, improve the cash position of a municipality by the various amounts listed above.

3. A 50% reduction in what a municipality normally spends on items that could be delayed for a year or two, is probably a maximum reduction in most cases. Therefore, the municipality which tried to balance its budget by temporarily reducing some of its expenditures might save the amounts which are listed above.

4. The value of a 10-mill Levy on municipal assessments (net of business tax assessments) is used.

5. The total tax levy (including improvement and frontage charges) is divided by the municipal assessment, and then multiplied by 1,000, showing both total dollar value and total mill rates with the same figures. Business tax levies and assessments are not included.

   Property improvement and frontage charges and requisitions for provincial taxes were isolated and expressed in mills. The remaining levy, in mills, is also shown for additional information.

Notes to Columns in Table 110

1. This includes tax arrears on land taken over (but not yet sold) for taxes.

2. The municipal assessment net of business tax assessments is used. Present total mill rates are used, as shown in Column 3.

3. Also shown in more detail in Table 111.

4. The values of all revenue-producing property were compared in 1965 and in 1967. An average percentage increase was obtained and rounded to the nearest 1/2% for ease of reading. Government property is included in these comparisons, because it yields grants in lieu of taxes.

5. Variable costs are those which can be reduced for a year or longer. Fixed costs are those which the municipality cannot control.

   Fixed costs include provincial taxes, local school and hospital requisitions, and other administrative costs.

   Variable costs include expenditures for recreation, public works, and capital purchases such as land, buildings, and equipment.

MUNICIPAL FINANCE

General

The financial affairs of a municipality can be viewed as its response, measured in dollars to a changing social and economic environment. Demands for services vary with changes in population, in income levels, and the resource base of the community at large. Financial conditions or trends within a municipality are general measures of how these demands for services have been met in the past and how they might be met in the future.

It must be noted, however, that a financial analysis cannot measure the desire which people have for services, nor their satisfaction when services are provided. A detailed financial analysis of a municipality can at best reveal the type and quantity of services rendered. It can also suggest how well a particular municipality could afford certain services.

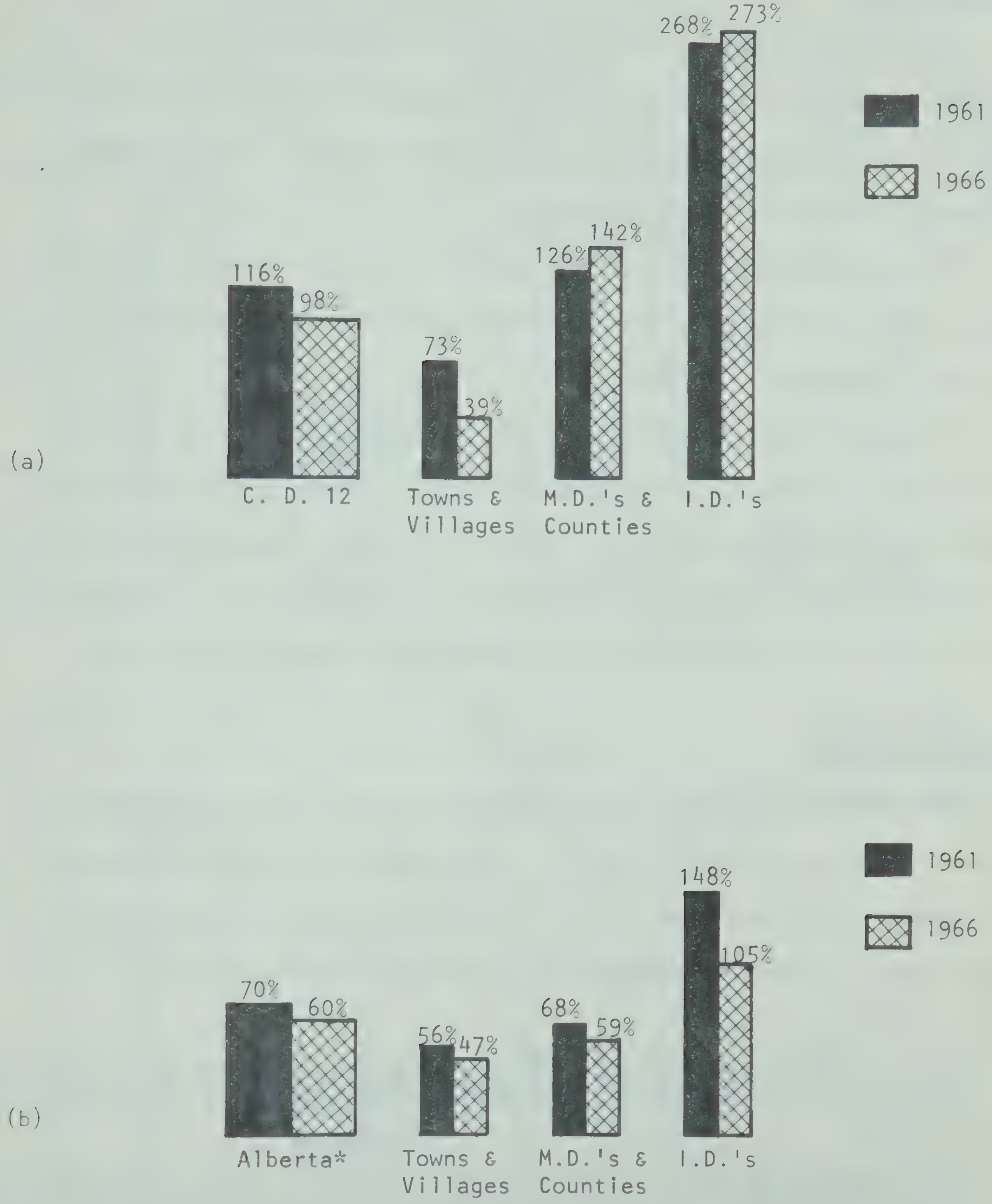
Since there are 22 municipal units in C. D. 12, this report will discuss only the more general financial conditions and trends. This discussion, therefore, will deal with the municipalities' ability to pay for present and future services.

For the purposes of this discussion, the various municipal units will be classified in three ways.

(1) towns and villages (2) counties and municipal districts, and (3) improvement districts. It should be noted that this approach may obscure the problems of some individual municipal unit that may be unique to that unit and may merit special attention.

Figure 64

WORKING CAPITAL OF MUNICIPALITIES[1] EXPRESSED AS A PER CENT OF THEIR TAX LEVIES



* Excludes cities. Corresponding percentages for cities in 1961 and 1966 were 7% and 9% respectively.

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[1] Alberta Department of Municipal Affairs; Annual Report, 1961, Edmonton, 1967, and Annual Report, 1966.

Budget Growth

The budgets of all Alberta municipalities (excluding cities)[1] in 1966 averaged about 40% above their 1961 budgets (see Figure 65) with expenditures increasing slightly faster than reserves. This represents an annual growth rate of 7% compounded.

The municipalities of C. D. 12 generally had 1966 budgets exceeding their 1961 budgets by over 50%, representing an annual growth rate of over 8%, compounded.

In general the revenues of C. D. 12 municipalities have grown with expenditures. However, within the urban group, (towns and villages), expenditures increased more rapidly than did revenues. The relative growth of revenues and expenditures is also reflected in Figure 66, which shows a decrease in the working capital of towns and villages in C. D. 12.

Working Capital

The cash requirements of municipalities fluctuate during the year, as do their cash revenues. However, since expenditures and revenues do not normally peak at the same time, a "cushion" of working capital must be available if short-term bank loans are to be avoided. [3]

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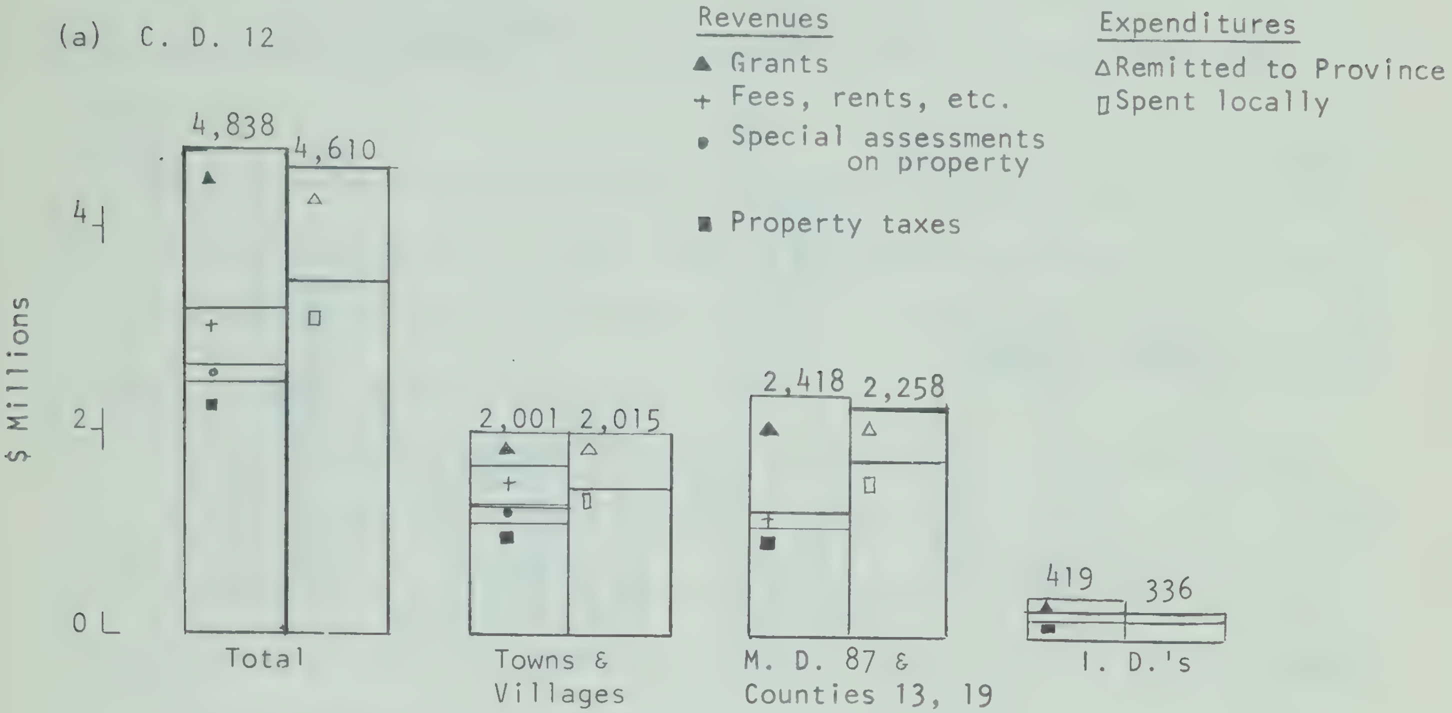
[1] The 1966 budgets of all Alberta cities also averaged 50% above their 1961 budgets, representing a compound rate of growth of just over 8% for 5 years.

[2] Working capital is referred to as a "surplus" in municipal accounting terminology. This surplus figure appears on the liabilities side of a municipality's General Revenue Fund Balance Sheet which lists all current assets and liabilities. The technical function of the surplus figure is to balance current liabilities with current assets.

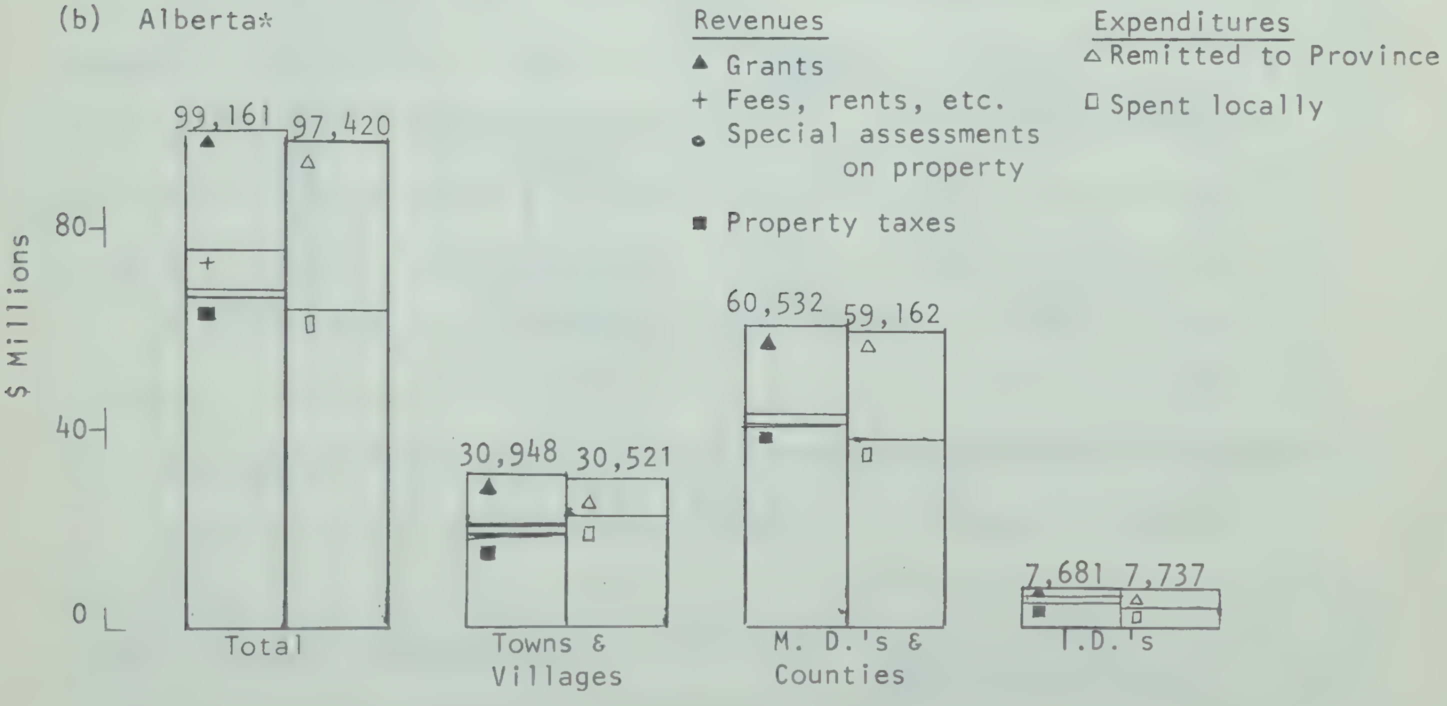
[3] Private communication, Municipal Finance Branch, Alberta Department of Municipal Affairs.

Figure 65 REVENUE AND EXPENDITURE COMPARISONS (1966)[1/] BY SOURCE AND DESTINATION OF FUNDS

(a) C. D. 12



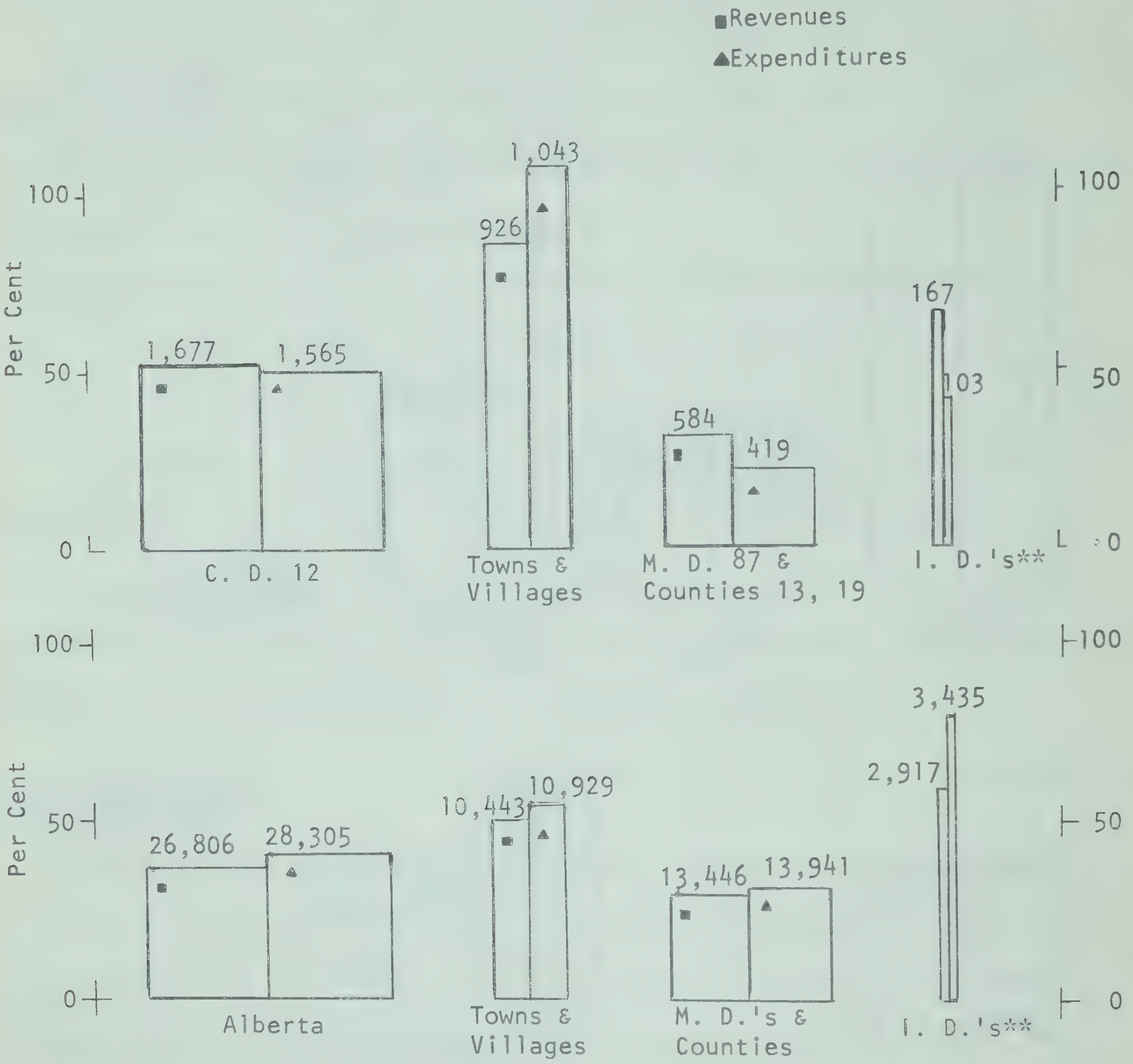
(b) Alberta*



* Excludes cities

[1/] Alberta Department of Municipal Affairs; Annual Report, 1966, Edmonton, 1967.

Figure 66 REVENUES AND EXPENDITURE CHANGES, 1961-66[1/]
('000's of Dollars)



** Receipts and payments are treated as revenues and expenditures.

[1/] Alberta Department of Municipal Affairs; Annual Report, 1961, Edmonton, 1962. and Annual Report, 1966.

The Municipal Finance Section of the Department of Municipal Affairs considers that a "cushion" of working capital equal to one-third of a year's tax levy is usually adequate if a municipality wishes to avoid short-term loans.[1/]

Working capital may be increased by an operating surplus, or an increase in a current reserve fund. It may also be increased by a reduction in spending on goods and services which cannot be paid for immediately (thereby reducing short-term or current liabilities).

The total working capital of municipalities in C. D. 12 was generally high in 1961, compared with the tax levy. However, working capital increased by 22% from 1961 to 1966, while tax levies increased an average of 43 percent in those five years.[2/] The resulting change in the relative size of working capital compared with the tax levy is shown on page 267.

Figure 65 shows C. D. 12 generally as having better working capital positions than Alberta, although there is a trend toward smaller working capital "cushions" relative to total budgets. Although working capital increased in dollar value, its growth from 1961 to 1966 was at an annual rate of 4%, compared to total budget growth of about 8% annually.

An explanation for high property taxes in C. D. 12 might be that the tax base is narrower or less diversified in C. D. 12, with fewer sources of tax revenues other than property. However, this is not actually the case.

Property tax revenues above form a smaller percentage of all local revenues in C. D. 12 than in Alberta, as Table 112 shows.

[1/] Private communication, Municipal Finance Branch, Alberta Department of Municipal Affairs.

[2/] Alberta Department of Municipal Affairs; Annual Report, 1961, Edmonton, 1962, and Annual Report, 1966.

Table 112 PROPERTY TAX RECEIPTS* (1966)[1]
AS A PERCENTAGE OF ALL LOCAL REVENUES

	C. D. 12	Alberta
Towns and Villages	78.8	79.4
M. D.'s and Counties	88.1	94.9
Improvement Districts	75.6	86.4
Total	83.0	88.0**

*Includes special assessments, but excludes business taxes.

**Excludes cities.

The relative broadness of the tax base in C. D. 12 is also shown visually in Figure 65.

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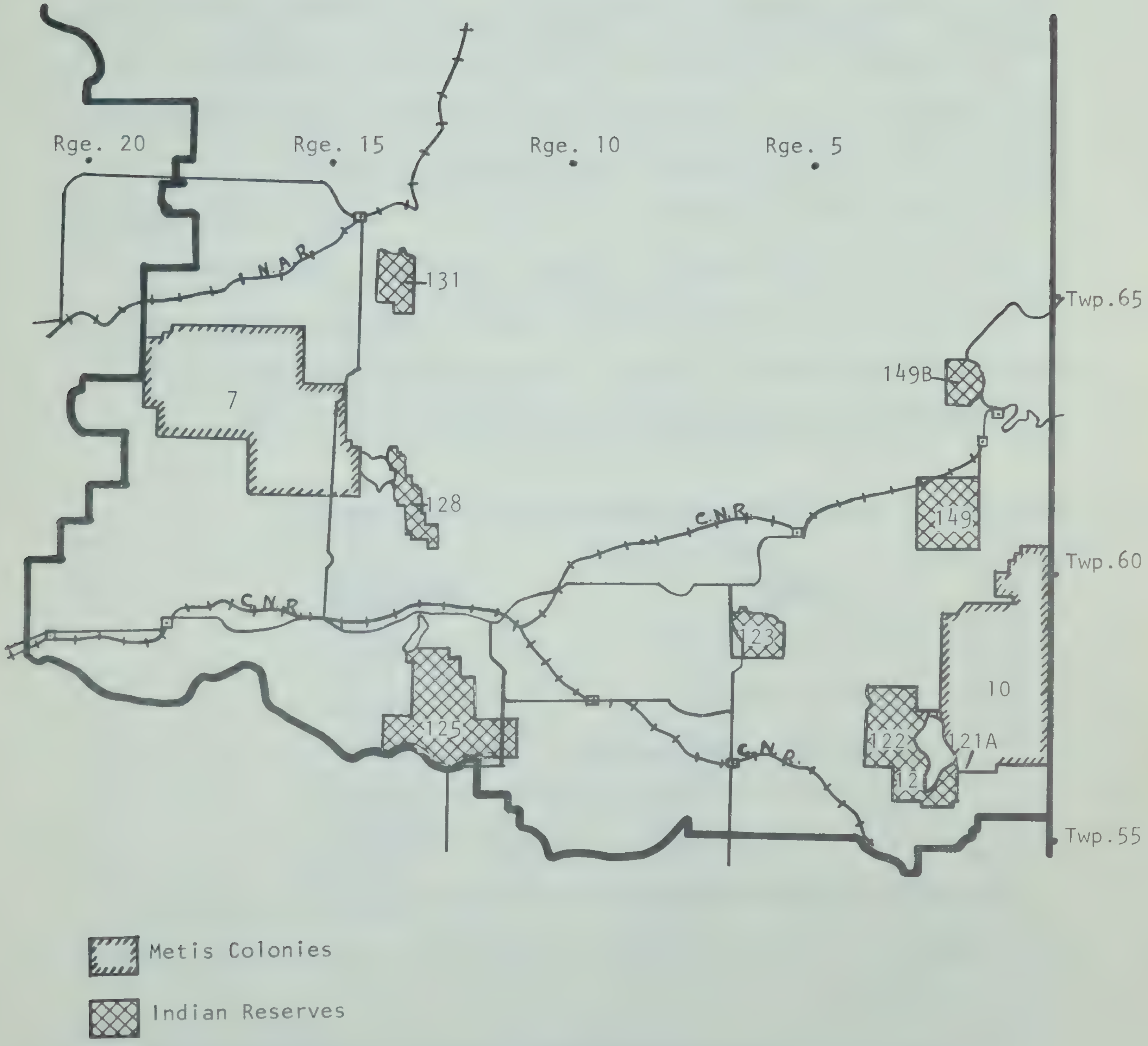
[1] Alberta Department of Municipal Affairs; Annual Report, 1966, Edmonton, 1967.

Figure 67 INDIAN RESERVES AND METIS COLONIES[1]

C. D. 12

(Southern Portion)



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[1] Map by Alberta Department of Municipal Affairs.

PEOPLE OF INDIAN ANCESTRY IN C.D. 12

The native populations of C.D. 12 is composed of treaty Indians, Metis in colonies and other people of Indian ancestry. The last group is made up of non-treaty Indians, and Metis not living in a colony. The population in the first two groups is easily obtained from the records of Indian Affairs and the Metis Rehabilitation Branch of the Department of Welfare. The size of the third group must be estimated, since many of the people in this group do not report their Indian ancestry in census interviews. Jean Lagasse has estimated that in Manitoba 87% of Metis people do not report their Indian ancestry to census takers.[1/] However, an estimate has been made, on the basis of discussions with people working in the area.

Table 113 PEOPLE OF INDIAN ANCESTRY IN C.D. 12 - 1967[2/]

Group	Population
Treaty Indians	5,510
Metis on Colonies	1,260
Others of Indian Ancestry	5,000
TOTAL	11,770

The number of people of Indian ancestry in C.D. 12 is 11,770, out of a total population of 50,635 (1966), or 23.2% of C.D. 12 population. The

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[1/] Legasse, Jean; The People of Indian Ancestry in Manitoba, Department of Agriculture and Immigration, Winnipeg, 1959, Vol. 1. p. 50 ff.

[2/] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967, and of Metis Rehabilitation Branch, Alberta Department of Public Welfare, Edmonton, 1967. Special tabulation, Rural Development Research Branch.

treaty Indian population in C.D. 12 is 5,510, of a total of 26,012, for Alberta, or a proportion of 21.2% of the total.

Population statistics from 1929 are available for treaty Indians in Alberta. If these are considered representative of the growth of the people of Indian ancestry in C.D. 12, the population increases at 4.4% per year. If this rate of growth remains constant until 1976, there will be a total of 17,371 people of Indian ancestry in C,D, 12. Of a projected total population of 66,927, this is 26%.

The growth of the treaty Indian population for Alberta is shown in the following table:

Table 114 POPULATION AND PER CENT ANNUAL GROWTH OF TREATY INDIANS[1/] IN ALBERTA, 1929 - 1967

Year	Population	Average Annual Increase	% Annual Increase
29	9,864	-	2.10
34	10,900	207	2.32
39	12,163	253	2.32
44	12,441	56	0.46
49	13,805	273	2.19
54	15,715	382	2.77
59	19,287	712	4.53
64	20,931	822	4.26
67 (June 30)	26,012	924	4.42

[1/] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

The education levels of native children in C.D. 12 can be determined from the records of the Northland School Division. For a selection of schools of the Northland School Division with predominately native enrollment, 7.1% of the students left school before Grade 10. (See Tables 116 and 117.) For Alberta, the proportion of students leaving school before Grade 10 is 0.66%. If the selection of schools is assumed representative of native people in C.D. 12, there are 6.4% more school drop-outs before Grade 10 among native children in C.D. 12 than among all Alberta children. The drop-out rate for native children in C.D. 12 is 10 times the average drop-out rate for Alberta children.

Education levels of adults among the native population of C.D. 12 can be obtained. The following table gives education levels of native adults compared to the education levels of Alberta adults:

Table 115 EDUCATION OF ADULTS* IN ALBERTA[1/]
AND ADULT* INDIANS IN C.D. 12
1961

Education Level	Alberta		Indians in C.D. 12	
	No.	% of Total	No.	% of Total
None	2,766	0.4	823	31.5
Pre 1	1,001	0.1	0	0.0
1 - 4	44,866	5.8	655	25.1
5 - 7	253,959	32.7	983	37.6
8 - 9	190,916	24.6	116	4.4
10	87,995	11.3	14	0.5
11	96,307	12.4	13	0.5
12	43,479	5.6	4	0.1
Some University	31,882	4.1	4	0.1
University Degree	24,067	3.1	0	0.0
TOTAL	777,238	100.0	2,612	100.0

* Total not attending school less pre-school children.

[1/] Hitherto unpublished data furnished on request by the Canadian Department of Trade and Commerce, Dominion Bureau of Statistics, 1961. Special tabulation, Rural Development Research Branch.

Table 116 STUDENTS LEAVING FOR ALL DESTINATIONS

SELECTED SCHOOLS OF NORTHLAND SCHOOL DIVISION
HAVING PREDOMINATELY NATIVE ENROLLMENT, 1/
C.D. 12 - 1965

School	Enrollment	Total Leaving	% Leaving
Anzac	72	4	5.6
Ft. Chipewyan Public School	34	1	2.9
Ft. Chipewyan Piche	308	22	7.1
Sweetgrass Lake	39	1	2.6
Conklin	46	4	8.7
Elizabeth Colony	69	5	7.2
Fishing Lake Colony	85	6	7.1
Ft. McKay	33	6	1.8
Imperial Mills	46	3	6.5
TOTAL	732	52	7.1

1/ Abstracted from records of the Alberta Department of Education, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

Table 117 STUDENTS LEAVING SCHOOL BEFORE GRADE 10
FOR ALBERTA SCHOOLS AND
SELECTED SCHOOLS OF NORTHLAND SCHOOL DIVISION
HAVING PREDOMINATELY NATIVE ENROLLMENT 1/
C.D. 12 - 1965

Grade	Alberta	% of Enrollment	Selected Schools	% of Enrollment
- 7 Boys	104		9	
Girls	56		7	
TOTAL	160	0.04	16	2.2
7 Boys	197		6	
Girls	103		5	
TOTAL	300	0.08	11	1.5
8 Boys	382		7	
Girls	222		3	
TOTAL	604	0.17	10	1.4
9 Boys	774		6	
Girls	568		9	
TOTAL	1,342	0.37	15	2.0
TOTAL	2,406	0.66	52	7.1

1/ Abstracted from records of the Alberta Department of Education, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

Only 3% of Indian adults have a Grade 10 education or better. The comparable figure for Alberta adults is 36.5%. In order to raise the education level of native adults to the average for Alberta, 1,857 native adults are in need of upgrading, or 33.5%.

Income statistics are available for the Indians of the Saddle Lake Reserve. Since the Saddle Lake Reserve is a relatively progressive region, the income statistics are probably higher than the C.D. 12 average for native people. (See table below:)

Table 118 TOTAL FAMILY REVENUE FROM ALL SOURCES[1/]
FOR SADDLE LAKE RESERVE, SAMPLE MEMBERS-1967

Income Groups	No.	%
None	6	7.6
Under $500	18	22.8
$ 500 - $ 999	15	19.0
1,000 - 1,999	16	20.3
2,000 - 2,999	9	11.4
3,000 - 4,999	8	10.1
Over $5,000	7	8.9
Total	79	100.0

From these statistics, the average annual income per native family in C.D. 12 would be $2,330.

The rate of criminal incidence is high among native people. Statistics are available for admissions to Alberta correctional institutes. (See Table 119.)

[1/] Newman, Morton; Indians of the Saddle Lake Reserve, Human Resources Development Council, Government of Alberta, March, 1967. Appendix F. p. 51.

Table 119 ADMISSIONS TO CORRECTIONAL INSTITUTIONS OF ALBERTA[1/]
AUGUST 1966

Correctional Institute	Total Admissions	Indian, Metis and Eskimo	%
Fort Saskatchewan (Male)	648	181	28.0
Fort Saskatchewan (Female)	109	81	74.0
Lethbridge	318	208	66.0
Calgary	563	88	16.0
TOTALS	1,638	558	(Av.)34.1

A proportion of 34.1% of all admissions to correctional institutions in Alberta are native people. However, only 1.8% of Alberta's population is of native ancestry.

[1/] Canadian Corrections Association, Indians and The Law, Ottawa, 1967. p. 45.

TREATY INDIANS IN C.D. 12;

PRESENT SITUATION

There are 5,510 treaty Indians in C.D. 12. Four thousand four hundred and sixty-one of them live on sixteen reserves and the remaining 1,049 live off reserves. The distribution of the present population is given in the following table:

Table 120

TREATY INDIAN POPULATION IN C. D. 12 - 1967 [1/]

Band	Population	Population On Reserve	Population Off Reserve
Saddle Lake & Goodfish Lake	2,212	2,121	91
Fort Chipewyan:	227	0	227
Chipewyan			
Cree	669	0*	669
Fort McMurray	90	90	0
Fort McKay	163	163	0
Janvier	168	168	0
Heart Lake	58	58	0
Beaver Lake	183	183	0
Frog Lake	513	495	18
Cold Lake	794	758	36
Kehewin	433	425	8
TOTAL	5,510	4,461	1,049

* This band has received no reserve allotment.

A total of 1,673 Indian children are in school. The school enrollment by band is as follows:

[1/] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

Table 121 SCHOOL ENROLLMENT BY INDIAN BAND, C.D. 12 [1]

Band	Enrollment
Saddle Lake & Goodfish Lake	721
Fort Chipewyan: Chipewyan) Cree)	243
Fort McMurray	60
Fort McKay	24
Janvier	27
Heart Lake	10
Beaver Lake	40
Frog Lake	141
Cold Lake	248
Kehewin	159
TOTALS:	1,673

The total land resource of Indians in C. D. 12 is 283,698 acres. Out of this total, 60,344 acres are wooded, 56,565 acres are in wild grass, 14,518 acres are cultivated, 1,843 acres are tame pasture and 150,228 acres are marsh, rocky land, etc. (See Table 123.)

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[1] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

Table 122 LAND (ACRES) BY INDIAN BAND, C. D. 12[1/]

Band	Wooded	Wild Grass	Tame Pasture	Cultivated	Other	Total
Saddle Lake & Goodfish Lake	14,925	17,825	1,480	10,699	21,073	66,002
Fort Chipewyan:						
Chipewyan	-	-	-	-	52,398	52,398
Cree	-	-	-	-	-	-
Fort McMurray	-	-	-	-	7,971	7,971
Fort McKay	-	-	-	-	13,455	13,455
Janvier	-	-	-	-	4,034	4,034
Heart Lake	-	-	-	-	11,029	11,029
Beaver Lake	-	100	-	57	15,154	15,311
Frog Lake	19,750	17,385	-	1,278	8,156	45,569
Cold Lake	16,879	15,120	103	2,265	12,147	46,514
Kehewin	8,790	6,235	360	219	4,811	20,415
TOTALS	60,344	56,565	1,843	14,518	150,228	283,698

The operation of reserves is financed by band funds and the Department of Indian Affairs. The total band funds held in trust for all Indian bands of C. D. 12 by the Department of Indian Affairs in 1967 was $744,875. The total budget of all bands in C. D. 12 for 1967-68 is $283,724. (See Table 123.)

[1/] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

Table 123 FINANCES OF INDIAN BANDS IN C. D. 12, 1967 [1]

Band	Band Funds	Band Budget 1967 - 68
Saddle Lake & Goodfish Lake	$222,417	$ 64,314
Fort Chipewyan:		
Chipewyan	-	-
Cree	-	-
Fort McMurray	19,967	-
Fort McKay	6,572	-
Janvier	816	-
Heart Lake	54,934	3,700
Beaver Lake	38,187	43,850
Frog Lake	19,855	11,290
Cold Lake	370,725	156,080
Kehewin	11,402	4,490
TOTALS	$744,875	$283,724

Revenue statistics are available for Indian reserves in C. D. 12 for all sources of income excepting wages for work off the reserve. These sources, with their revenues, are given in Table 124 . A total of $736,786 was earned in 1966-67.

A total of 101 treaty Indians in C. D. 12 farm 7,578 acres, or an average of 75 acres per farmer. (See Table 125.)

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[1] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

Table 124

REVENUE OF INDIAN BANDS IN C. D. 12, 1966 - 67 [1/]

Band	Leases	Farming	Ranching	Timber	Oil & Gas	Trapping	Fishing	Wild Hay	Outfitting & Guiding	Welfare	Total
Saddle Lake and Goodfish Lake	37,765	127,975	92,300	12,300	33,700	6,700	3,500	20,000	-	199,323	533,563
Fort Chipewyan:											
Chipewyan	-	-	-	-	-	10,000	1,100	-	-	10,822	21,922
Cree	-	-	-	-	-	4,000	400	-	-	32,464	36,864
Fort McMurray	-	-	-	-	5,515	900	-	-	-	4,300	10,715
Fort McKay	-	-	-	-	-	3,000	-	-	-	8,022	11,022
Janvier	-	-	1,400	-	-	1,500	-	-	-	10,335	13,235
Heart Lake	-	-	-	3,000	-	2,400	-	-	-	-	5,400
Beaver Lake	-	-	1,900	1,400	-	3,000	1,500	-	-	9,811	17,611
Frog Lake	12,125	15,700	12,800	3,200	12,785	3,600	-	4,000	-	70,019	134,229
Cold Lake	1,875	49,125	21,400	11,200	12,000	900	12,500	8,000	-	109,305	226,300
Kehewin	2,440	7,400	12,400	2,900	-	3,200	900	2,500	-	66,183	97,923
TOTALS	54,205	200,200	142,200	34,000	64,000	39,200	19,900	34,500	-	520,584	1,108,789

[1/] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

Table 125 FARMING ON INDIAN RESERVES IN C. D. 12 - 1967[1/]

Band	Number of Farmers	Total Acreage Operated	Average Acreage
Saddle Lake & Goodfish Lake	41	5,119	125
Frog Lake	11	378 250* 628	34
Cold Lake	45	1,965	44
Kehewin	4	116 180* 296	29
TOTALS**	101 Men	7,578 acres +430* 8,008 acres	75 acres/man

*Band farm

**No farming is done on Fort Chipewyan, Fort McMurray, Fort McKay, Janvier, Heart Lake or Beaver Lake reserves.

One hundred and nine people are involved in ranching. They own a total of 1,420 cattle, an average of 13 head per rancher. Statistics on ranching by band are given in Table 126.

[1/] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

Table 126

RANCHING ON INDIAN RESERVES IN C. D. 12 - 1967[1]

Band	Number of Ranchers	Total Number Of Cattle	Average Per Rancher
Saddle Lake & Goodfish Lake	62	923	15
Janvier	2	14	7
Heart Lake	-	-	-
Beaver Lake	5	19	4
Frog Lake	13	126 2* 128	10
Cold Lake	20	214	11
Kehewin	7	124	18
TOTALS**	109	1,420	13 cattle/man

* Band bulls

** No ranching is done on Fort Chipewyan, Fort McMurray or Fort McKay reserves.

There are 217 active Indian trappers in C. D. 12, who make a total annual revenue of $39,200. The average annual income from trapping is $181 per trapper. (See Table 127.)

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[1] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

Table 127 TRAPPING BY INDIANS IN C. D. 12 - 1967[1]

Band	No. Trappers	Total Annual Income	Average Annual Income
Saddle Lake and Goodfish Lake	52	$ 6,700	$129
Fort Chipewyan			
Chipewyan	25	10,000	400
Cree	9	4,000	444
Fort McMurray	7	900	129
Fort McKay	25	3,000	120
Janvier	12	1,500	125
Heart Lake	12	2,400	200
Beaver Lake	15	3,000	200
Frog Lake	28	3,600	129
Cold Lake	7	900	129
Kehewin	25	3,200	128
TOTALS	217	39,200	181

Thirty-nine fishermen make an annual revenue of $19,900 from commercial fishing, or an average of $510 per fisherman. (See Table 128.)

Indians of C. D. 12 operate a total of four sawmills. The total annual lumber production on reserves is 680,000 fbm. Some revenue is also derived from fence posts, firewood, fence rails, etc. For all reserves this is $10,000 per year. (See Table 129.)

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[1] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

Table 128 COMMERCIAL FISHING BY INDIAN BANDS IN C. D. 12 - 1967[1/]

Band	No. Fishermen	Total Annual Income	Average Annual Income
Saddle Lake and Goodfish Lake	4	$ 3,500	$875
Fort Chipewyan			
Chipewyan	8	1,100	138
Cree	3	400	133
Beaver Lake	10	1,500	150
Cold Lake	8	12,500	1,562
Kehewin	6	900	150
TOTALS*	39	$19,900	$510

*There is no fishing on Fort McMurray, Fort McKay, Janvier or Heart Lake reserves.

Harvesting wild hay employs 345 men, who bring in a total annual revenue of $34,500 or an average per man of $100. (See Table 130.)

No one among the Indians of C. D. 12 is employed in outfitting and guiding.

Indian reserves in C. D. 12 make $54,205 from grazing and farming leases. A total of 49 leases are let, with a total acreage of 31,388. The average number of acres per lease is 641. The average income per lease is $1,106. (See Table 131.)

[1/] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

Table 129 LUMBERING ON INDIAN RESERVES IN C. D. 12 - 1967[1/]

Band	No. Sawmills	Lumber (Annual) FBM
Saddle Lake and Goodfish Lake	2	200,000 (+ $2,300)
Heart Lake	0	(+ $3,000 timber dues)
Beaver Lake	0	(+ $1,400)
Frog Lake	0	40,000 (+ $1,200)
Cold Lake	1	200,000 (+ $1,200)
Kehewin	1	40,000 (+ $ 900)
TOTALS*	4	680,000 (+ $10,000)

* There is no lumbering at Fort Chipewyan, Fort McMurray, Fort Mckay or Janvier.

Table 130 HARVESTING WILD HAY ON RESERVES IN C. D. 12 - 1967[2/]

Band	No. Of Men	Total Annual Income	Average Annual Income
Saddle Lake and Goodfish Lake	190	$20,000	$105
Frog Lake	45	4,000	89
Cold Lake	70	8,000	114
Kehewin	40	2,500	62
TOTALS*	345	$34,500	$100

*There is no wild hay harvested at Fort Chipewyan, Fort McMurray, Fort McKay, Janvier, Heart Lake or Beaver Lake.

[1/] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

[2/] Ibid.

Table 131 LEASES LET BY INDIAN BANDS IN C. D. 12 - 1967[1/]

BAND	GRAZING		FARMING		OTHER	
	No.	Acreage	No.	Acreage	No.	Total Acreage
Saddle Lake and Goodfish Lake	8	5,290	21	5,580	0	0
Frog Lake	6	9,400	1	900	0	0
Cold Lake	4	1,600	1	300	0	0
Kehewin	6	8,205	1	103	1	10
TOTAL*	24	24,495	24	6,883	1	10

* No leases are let on Fort Chipewyan, Fort McMurray, Fort McKay, Janvier, Heart Lake or Beaver Lake reserves.

Local government of reserves consists of band councils, which are composed of a chief and several councillors. The council members for all reserves in C. D. 12 are elected, however, the council members of some reserves are elected for a short term; on others they are elected for life.

Only three reserves have homemaker's clubs. Saddle Lake and Goodfish Lake have a joint club of 19 members. The other clubs are on the Kehewin and Frog Lake reserve, with a membership of six and three respectively. (See Table 132.)

[1/] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

Table 132

HOMEMAKERS' CLUBS [1/]

Band	Membership
Saddle Lake and Goodfish Lake	19
Frog Lake	3
Kehewin	6
TOTAL*	28

* No homemakers' clubs exist on other reserves in C. D. 12.

Housing statistics are available on two ratings: good, fair, and poor and by number of rooms in the house. These statistics were collected by the Department of Indian Affairs through their agency offices. (See Tables 133 and 134.)

Only 35.8% of Indian homes in C. D. 12 are classed as good. An equal percentage are classed as poor.

For a family of seven people, the average Indian family in C. D. 12, at the minimum, a 3 bedroom home is required. A home with 3 bedrooms will normally have 6 rooms, if a bathroom is included. However, only 27 or 3.6% have 6 rooms, out of 757 Indian homes in C. D. 12. If this may be accepted as a criterion, ninety-six and two-fifths percent of Indian homes or a total of 730, are under required size.

[1/] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

Table 133 HOUSING ON INDIAN RESERVES IN C. D. 12 - 1967[1/]

	Good		Fair		Poor		Total	
	No.	%	No.	%	No.	%	No. 2	%
Saddle Lake and Goodfish Lake	124	39.6	87	27.8	102	32.6	313	100.0
Fort Chipewyan								
Chipewyan	11	37.9	10	34.5	8	27.6	29	100.0
Cree	23	25.8	28	31.5	38	42.7	89	100.0
Fort McMurray	0	0.0	0	0.0	8	100.0	8	100.0
Fort McKay	0	0.0	6	15.0	34	85.0	40	100.0
Janvier	0	0.0	16	94.1	1	5.9	17	100.0
Heart Lake	0	0.0	0	0.0	7	100.0	7	100.0
Beaver Lake	20	74.1	4	14.8	3	11.1	27	100.0
Frog Lake	23	34.8	27	41.0	16	24.2	66	100.0
Cold Lake	44	40.1	25	23.4	38	35.5	107	100.0
Kehewin	26	48.1	13	24.1	15	27.8	54	100.0
TOTALS/AVERAGES	271	35.8	216	28.5	270	35.8	757	100.0

The number of Indian homes with various services are given in Table . Only 1.1% of homes have a telephone, 0.3% have a bathroom, o.3% have running water, 0.3% have sewer or septic tank, and 15.8% have electricity. (See Table 135.)

The number of children in care for all reserves in C. D. 12 is 60. The cost for these children is $40,917, or an average of $682 per child. (See Table 136.)

[1/] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967. Special tabulations Rural Development Research Branch.

Table 134

HOUSING ON INDIAN RESERVES IN C. D. 12 - 1967[1/]

	1 Room		2 Room		3 Room		4 Room		5 Room		6 Room		7+Room		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Saddle Lake and Goodfish Lake	97	31.0	76	24.3	17	5.4	17	5.4	90	28.7	16	5.1	0	0.0	313	100.0
Fort Chipewyan																
Chipewyan	8	27.6	13	44.8	6	20.7	1	3.4	1	3.4	0	0.0	0	0.0	29	100.0
Cree	45	50.6	27	30.3	8	9.0	8	9.0	1	1.1	0	0.0	0	0.0	89	100.0
Fort McMurray	6	75.0	2	25.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	8	100.0
Fort McKay	34	85.0	0	0.0	0	0.0	6	15.0	0	0.0	0	0.0	0	0.0	40	100.0
Janvier	2	11.8	4	23.5	5	29.4	6	35.3	0	0.0	0	0.0	0	0.0	17	100.0
Heart Lake	0	0.0	4	57.1	3	42.9	0	0.0	0	0.0	0	0.0	0	0.0	7	100.0
Beaver Lake	0	0.0	10	37.0	0	0.0	0	0.0	17	63.0	0	0.0	0	0.0	27	100.0
Frog Lake	38	57.6	4	6.1	4	6.1	3	4.5	15	22.7	2	3.0	0	0.0	66	100.0
Cold Lake	48	44.9	28	26.2	7	6.5	15	14.0	4	3.7	5	4.7	0	0.0	107	100.0
Kehewin	22	40.7	10	18.5	2	3.7	0	0.0	16	29.6	4	7.4	0	0.0	54	100.0
TOTALS/ PERCENTAGES	300	39.6	178	23.5	52	6.9	56	7.4	144	19.1	27	3.6	0	0.0	757	100.0

[1/] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

Table 135 SERVICES IN INDIAN HOMES IN C. D. 12 - 1967[1]

Band	Electricity		Septic Tank		Running Water		Indoor Bathroom		Telephone		Total
	No.	%	No.	%	No.	%	No.	%	No.	%	
Saddle Lake and Goodfish Lake	70	22.4	2	0.6	2	0.6	2	0.6	1	0.3	313
Ft. Chipewyan											
Chipewyan	8	27.6	0	0.0	0	0.0	0	0.0	2	6.9	29
Cree	17	19.1	0	0.0	0	0.0	0	0.0	5	5.6	89
Ft. McMurray	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	8
Ft. McKay	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	40
Janvier	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	17
Heart Lake	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	7
Beaver Lake	19	70.4	0	0.0	0	0.0	0	0.0	0	0.0	27
Frog Lake	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	66
Cold Lake	5	4.7	0	0.0	0	0.0	0	0.0	0	0.0	107
Kehewin	1	1.8	0	0.0	0	0.0	0	0.0	0	0.0	54
TOTAL	120	15.8	2	0.3	2	0.3	2	0.3	8	1.1	757

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[1] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

Table 136 CHILDREN IN CARE FROM INDIAN RESERVES IN C. D. 12[1/]
1967

Band	Children in Care	Cost
Saddle Lake and Goodfish Lake	14	$ 5,044
Fort Chipewyan		
Chipewyan	2	2,560
Cree	6	7,682
Fort McMurray	4	2,848
Fort McKay	4	5,718
Janvier	0	0
Heart Lake	3	1,534
Beaver Lake	0	0
Frog Lake	19	11,292
Cold Lake	6	3,227
Kehewin	2	1,012
TOTAL	60	$40,917

Welfare costs by Indian reserve are given in Table 137. The total welfare expenditure was $520,584, received by 459 people on permanent welfare and 2,972 on emergency welfare.

[1/] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

Table 137 WELFARE PAYMENTS BY INDIAN BAND IN C. D. 12 - 1967[1/]

Band	Permanent Welfare	Average Number Emergency Welfare	Total Welfare Costs
Saddle Lake and Goodfish Lake	207	1,335	$199,323
Fort Chipewyan			
Chipewyan	9	93	10,822
Cree	24	187	32,464
Fort McMurray	12	15	4,300
Fort McKay	27	10	8,022
Janvier	34	59	10,335
Heart Lake*	-	-	-
Beaver Lake**	14	63	9,811
Frog Lake	13	382	70,019
Cold Lake	75	507	109,305
Kehewin	44	321	66,183
TOTAL	459	2,972	$520,584

* Administered by Alberta Department of Public Welfare.

** 50% Band Funds.

Table 138 gives welfare payments as a per cent of total income on reserves. The total income statistics do not include wages from work off the reserves because no information is available on this latter amount. However, for some reserves it may equal the income from other sources and on other reserves it may be virtually nil. With the foregoing reservation, 47.2% of total income on reserves in C. D. 12 comes from welfare payments. (See Table 138.)

[1/] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

Table 138 WELFARE AS PERCENTAGE OF TOTAL INCOME[1/]

Band	Total Income (Excluding Wages For Work Off Reserve)	Total Welfare	% of Total
Saddle Lake and Goodfish Lake	$ 531,263	$199,323	37.5
Fort Chipewyan			
Chipewyan	21,922	10,822	49.4
Cree	36,864	32,464	88.1
Fort McMurray	10,715	4,300	39.7
Fort McKay	11,022	8,022	72.7
Janvier	3,235	10,335	78.1
Heart Lake	5,400	-	-
Beaver Lake	17,611	9,811	50.7
Frog Lake	133,029	70,019	52.6
Cold Lake	225,105	109,305	48.6
Kehewin	97,023	66,183	68.2
TOTAL	$1,103,189	$520,584	47.2

[1/] Abstracted from records of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development, Edmonton, 1967. Special tabulations, Rural Development Research Branch.

RECOMMENDATIONS

Leadership Training[1]

An extensive leadership training program should be implemented among Indian people to provide them with information on their situation and on possible alternatives and to give them experience in community organization. If 10% of adults from 20 to 45 years of age follow leadership training courses, a total of 151 people will be involved. Three educators at $15,000 per year will cost $45,000/year

Upgrading[2]

To raise adult education levels to the provincial average, 905 people will need an average of one year of upgrading, at $2,000 per person per year.

$1,810,000

Intercultural Education Advisors[3]

It is recommended that teachers of native children should have special training in intercultural education. It is also suggested, for teachers in C. D. 12 who have only a few native children in their classrooms, that intercultural education advisors call meetings and make individual contacts with these teachers to discuss the special problems of cross cultural education. Three advisors are suggested for the census division.

$45,000/year

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[1] See "Education" section.

[2] Ibid

[3] Ibid

Vocational Training[1/]

There will be 341 adults needing vocational training, which is 50% of males between ages 25 to 55.

$1,517,450

Relocation[2/]

Those who obtain vocational retraining will also move to where a job is available. To make social and financial adjustments involved in relocating, six total adjustment counsellors will be required at $15,000 per year.

$90,000/year

Occupational Advisors[3/]

Occupational advice will be needed for people who remain on reserves, to improve their jobs to the level of an economic unit. Four hundred and sixteen families remaining on reserves will need two occupational advisors at $15,000 each per year.

$30,000/year

Housing[4/]

Approximately 416 families will remain on reserves, of which 35.8% or 149 will need new homes. At $10,000 per home, the cost will be $1,490,000. An additional 252 houses will need enlarging to meet the minimum standard of 6 rooms. If the cost of enlarging is $5,000, this will require $1,260,000.

Another 341 families will take vocational training and relocate, also requiring new homes. At $15,000 per home the cost will be approximately $5,115,000.

[1/] See "Education" section.

[2/] See "Welfare" section.

[3/] Ibid

[4/] See "Family Housing" section.

Electricity will need to be supplied to 201 homes. At a cost of $1,500 per home, the total will be $301,500.

Water and sewage facilities will be required for 265 homes. At $3,000 per home the cost will be approximately $795,000. Telephones will be required in 262 homes.

$8,961,500

Physical Resource Development

Land development requirements are given in Table 139 below:

Table 139 LAND DEVELOPMENT ON INDIAN RESERVES IN C. D. 12[1/]

Reserve	Acres For Grain Production	Units	Acres For Pasture	Hay	Units
Kehewin	11,500	23	3,400	5,100	2
Goodfish	0	0	5,800	8,300	3
Saddle Lake	45,000	112	2,500	1,200	1
Frog Lake	7,000	15	33,000	4,000	9
Cold Lake 149	26,700	53	1,500	3,800	1
Cold Lake 149B	0	0	6,400	3,800	3
Beaver Lake	0	0	13,750	1,300	3
Heart Lake	0	0	10,200	600	2
Gregoire Lake	0	0	5,000	600	1
Clearwater	0	0	1,300	600	1
TOTALS*	90,200	203	96,350	29,300	26

* According to the land survey there is no land suitable for gain or hay production on the Fort Chipewyan, Fort McKay or Janvier Reserves.

[1/] Abstracted from Canada Land Inventory maps (unpublished). Special tabulations, Rural Development Research Branch.

The estimates of land development are made from Canada Land Inventory maps of Indian reserves in C. D. 12 showing soil capability classifications for agriculture. The legend for these maps, included on the following pages, is as follows:

Capability Classes

1 - no significant limitations for use in crops

2 - moderate limitations, restricting the range of crops or requiring moderate conservation practices

3 - moderately severe limitations that restrict the range of crops or require special conservation practices

4 - severe limitations restricting the range of crops or requiring special conservation practices or both

5 - severe limitations restricting their capability to producing perennial forage crops, and improvement practices

6 - capable only of producing perennial forage crops, and improvement practices are not feasible

7 - no capability for arable culture or permanent pasture

0 - organic soils

Capability Subclasses

c - adverse climate

d - undesirable soil structure and/or low permeability

e - erosion

m - moisture limitation

s - adverse soil characteristics

t - topography

w - excess water

Figure 68 KEHIWIN INDIAN RESERVE NO. 123

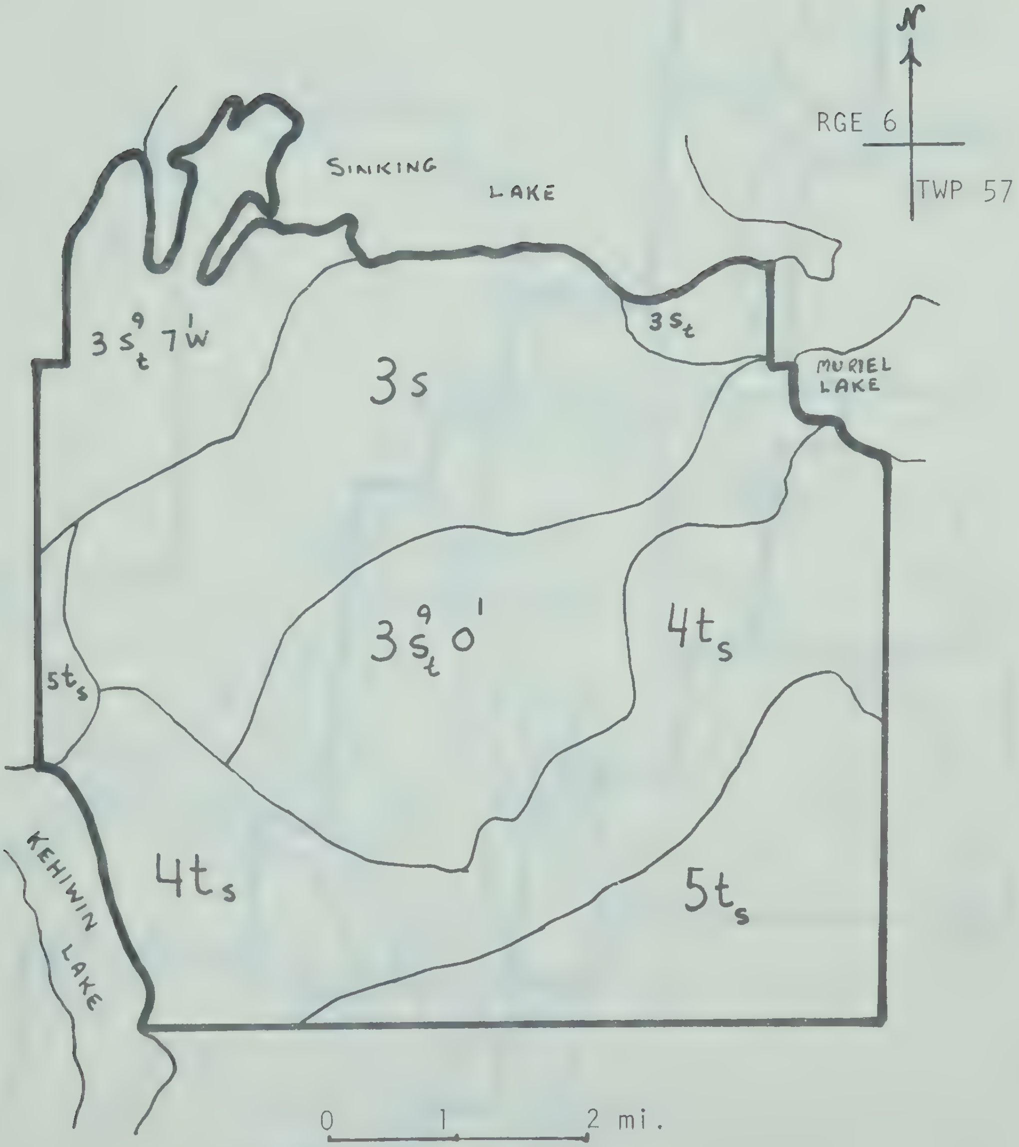


Figure 69 WHITEFISH LAKE INDIAN

RESERVE NO. 128

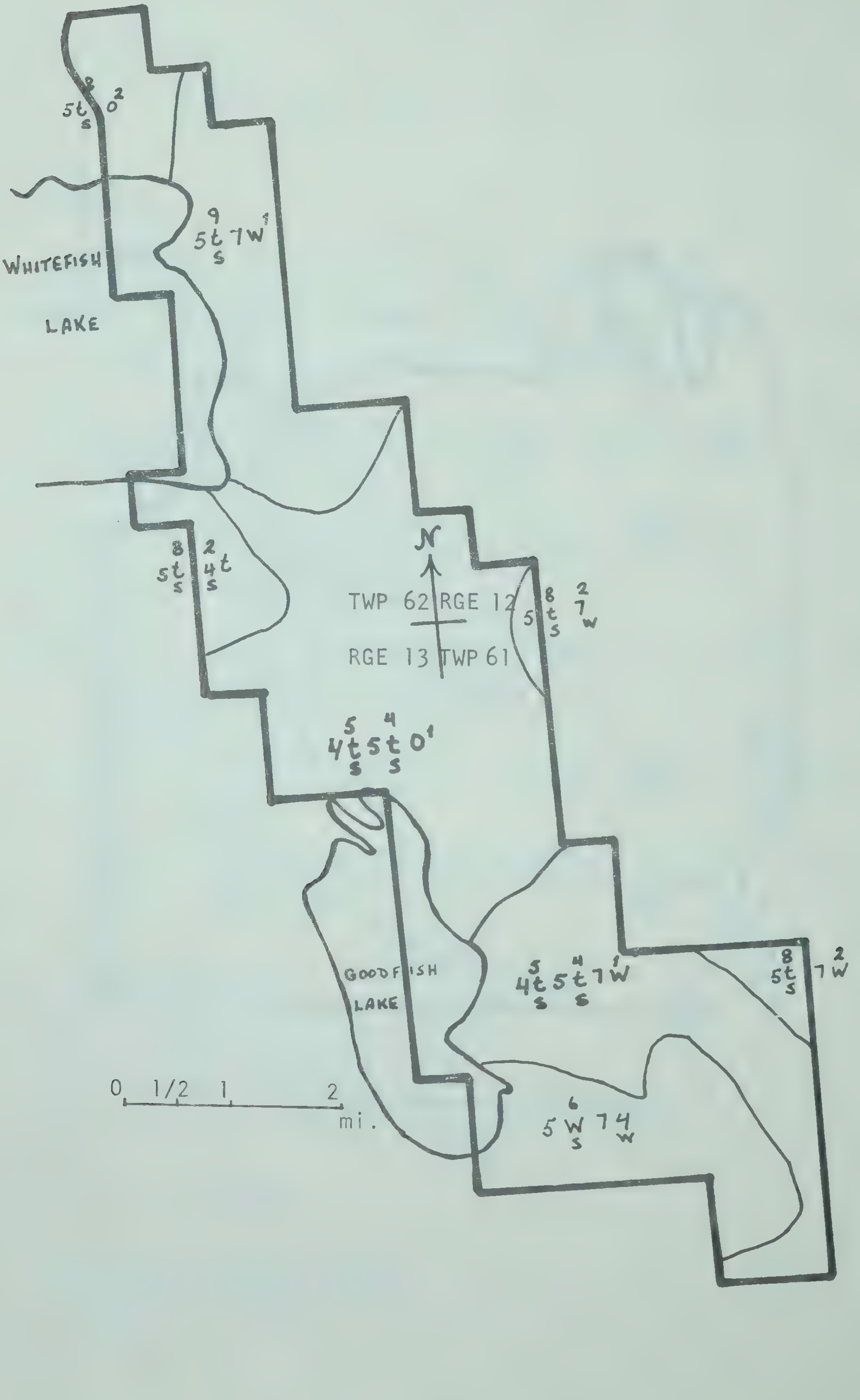


Figure 70

SADDLE LAKE

INDIAN RESERVE NO. 125

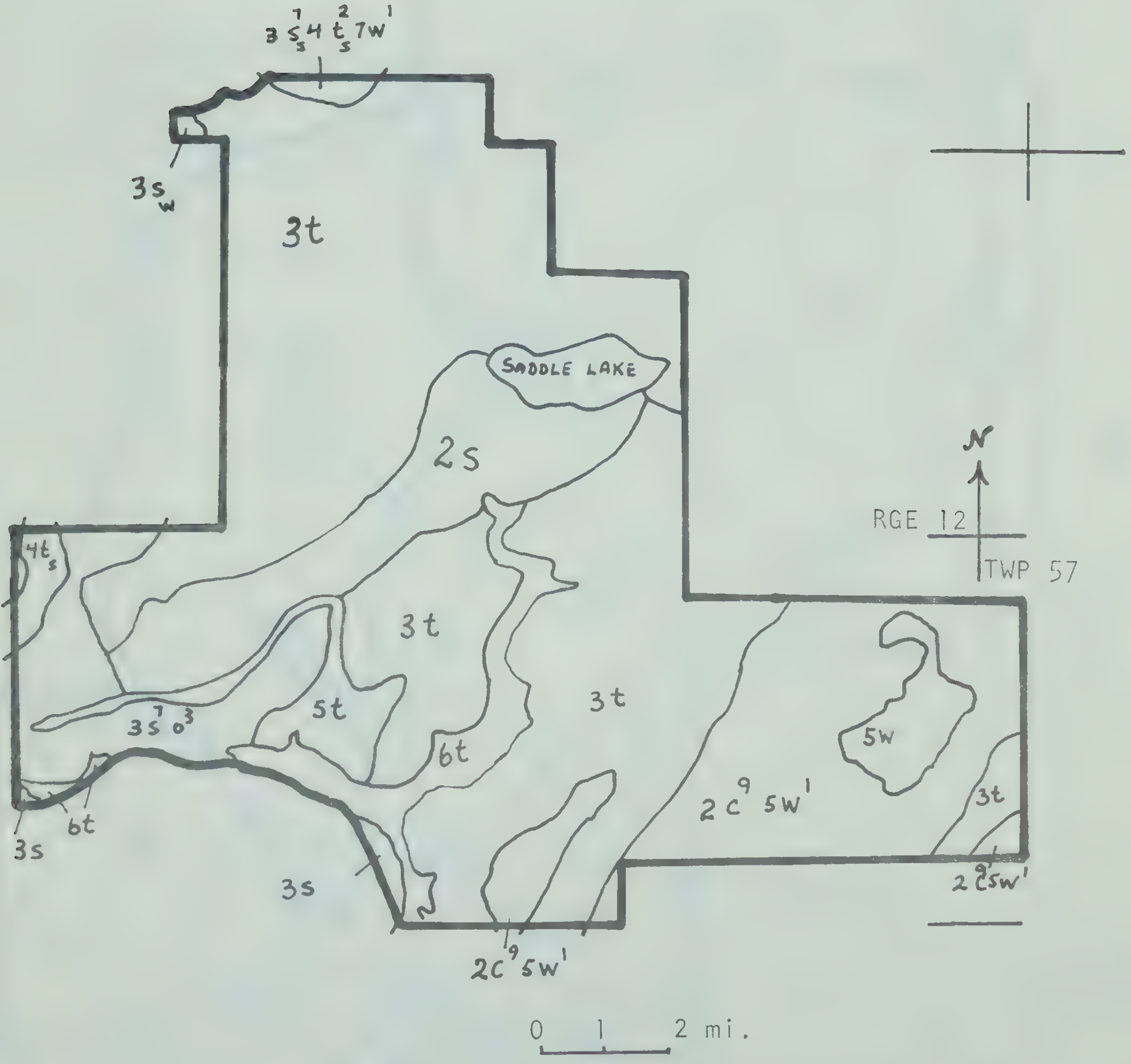


Figure 71 FROG LAKE INDIAN RESERVES NOS. 121 & 122

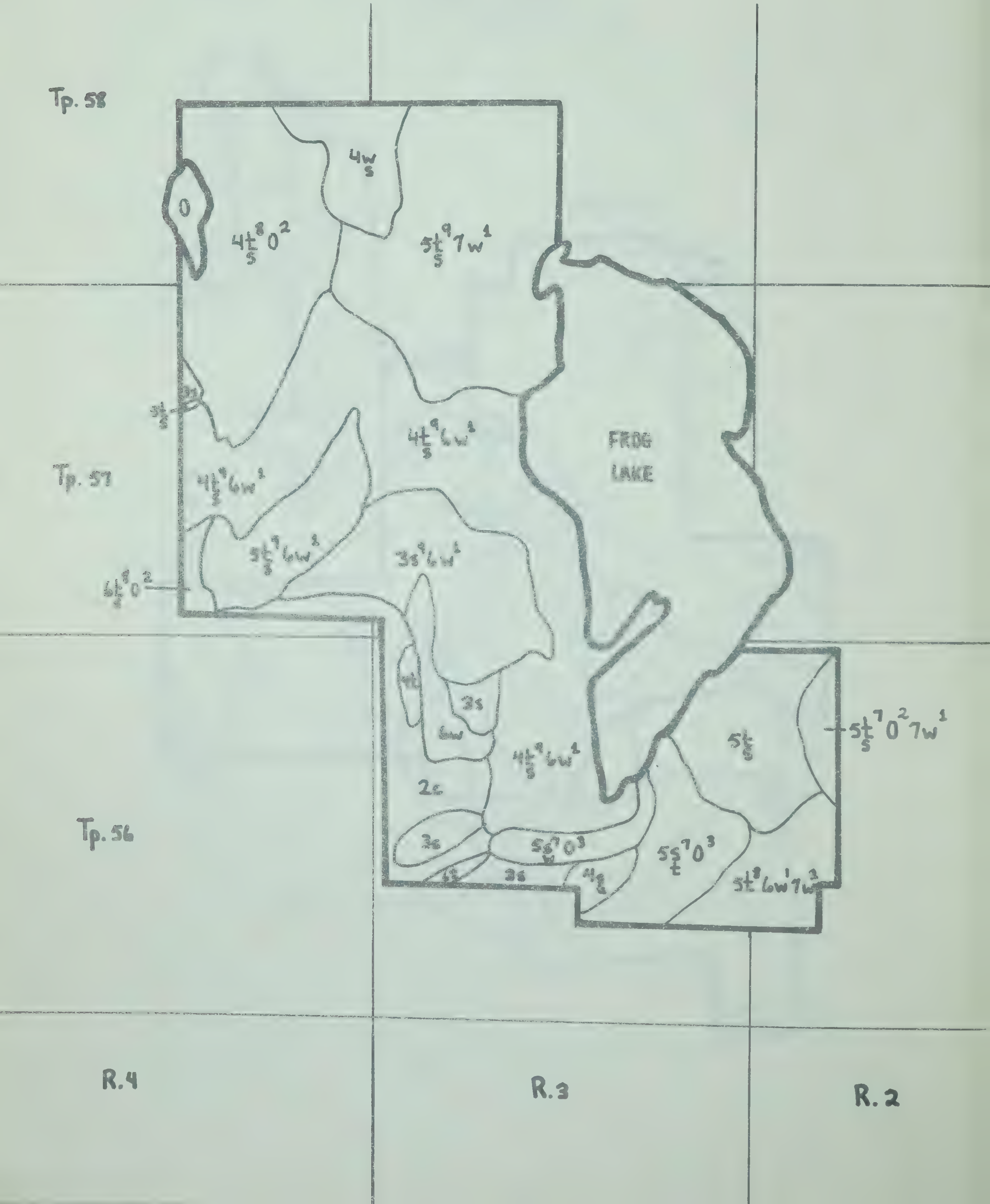


Figure 72 COLD LAKE INDIAN RESERVE NO. 149

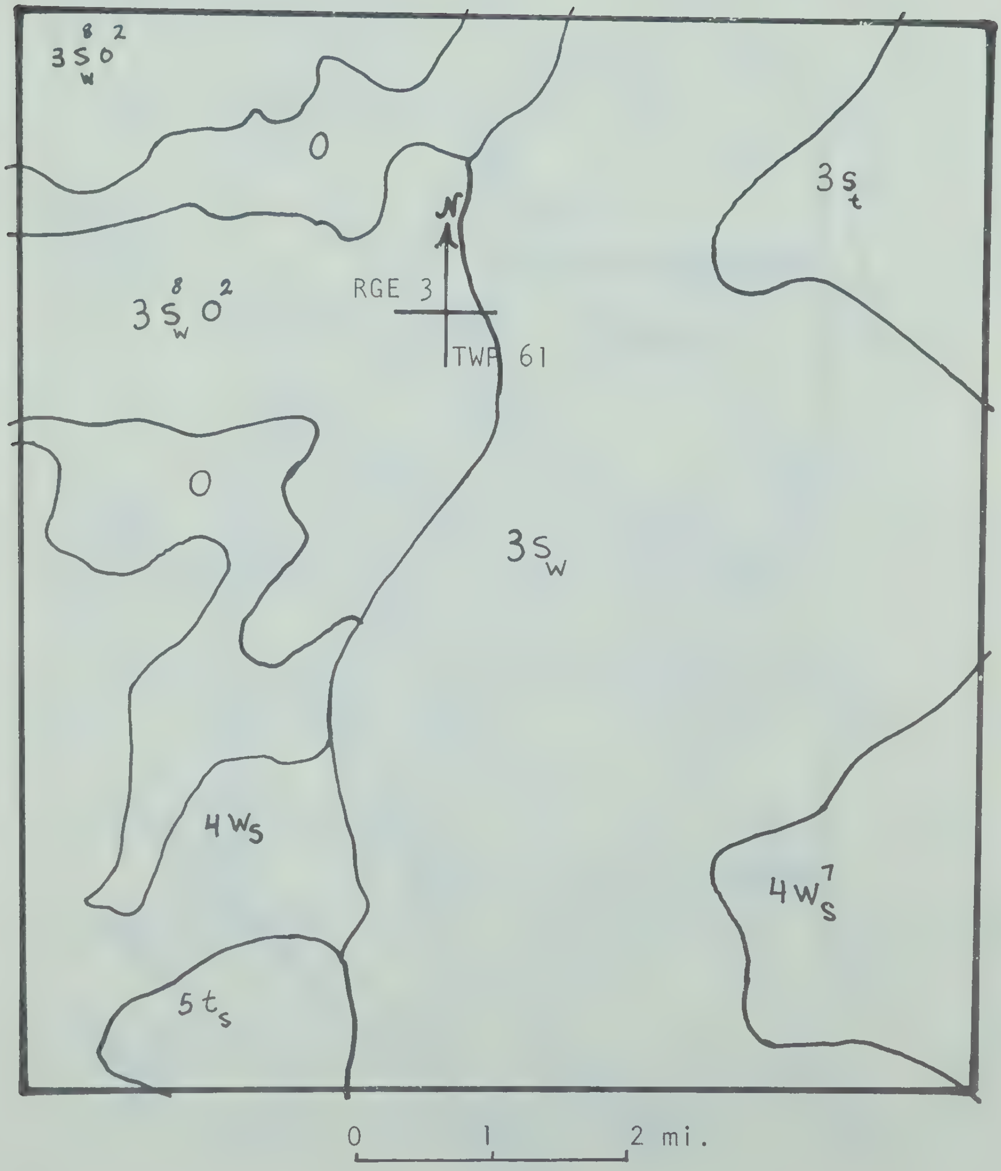


Figure 73

COLD LAKE

INDIAN RESERVE NO. 149 B

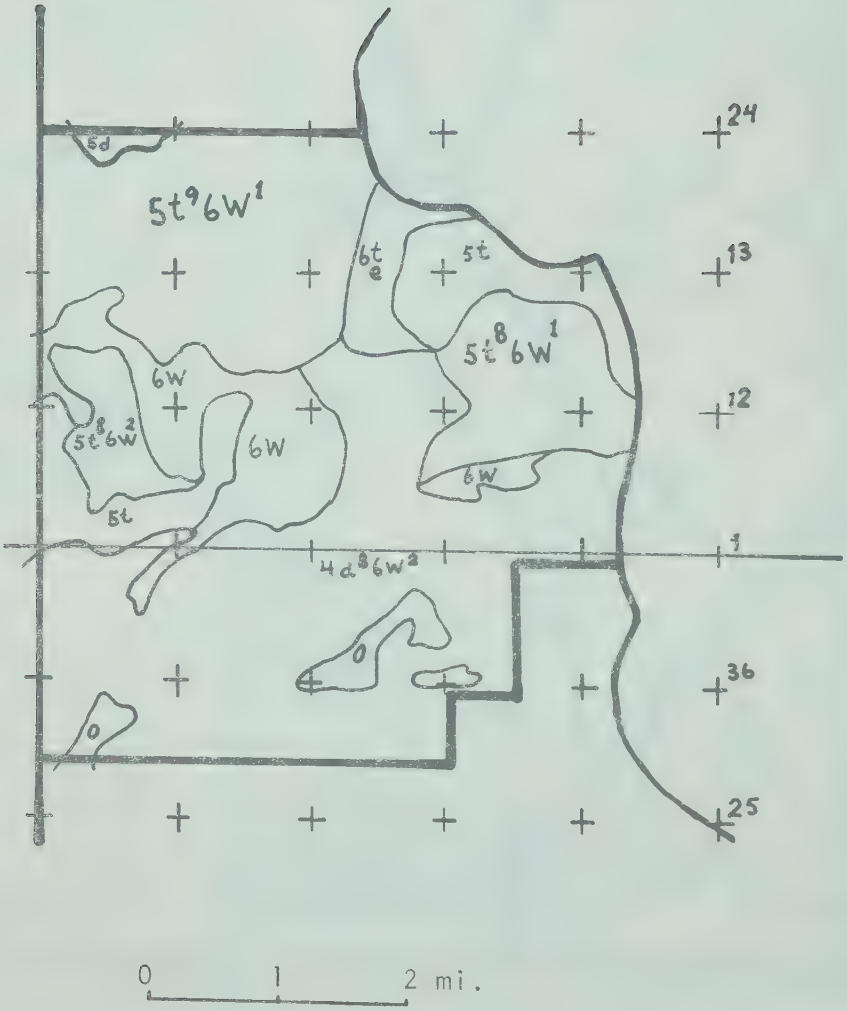


Figure 74 BEAVER LAKE INDIAN RESERVE NO. 131

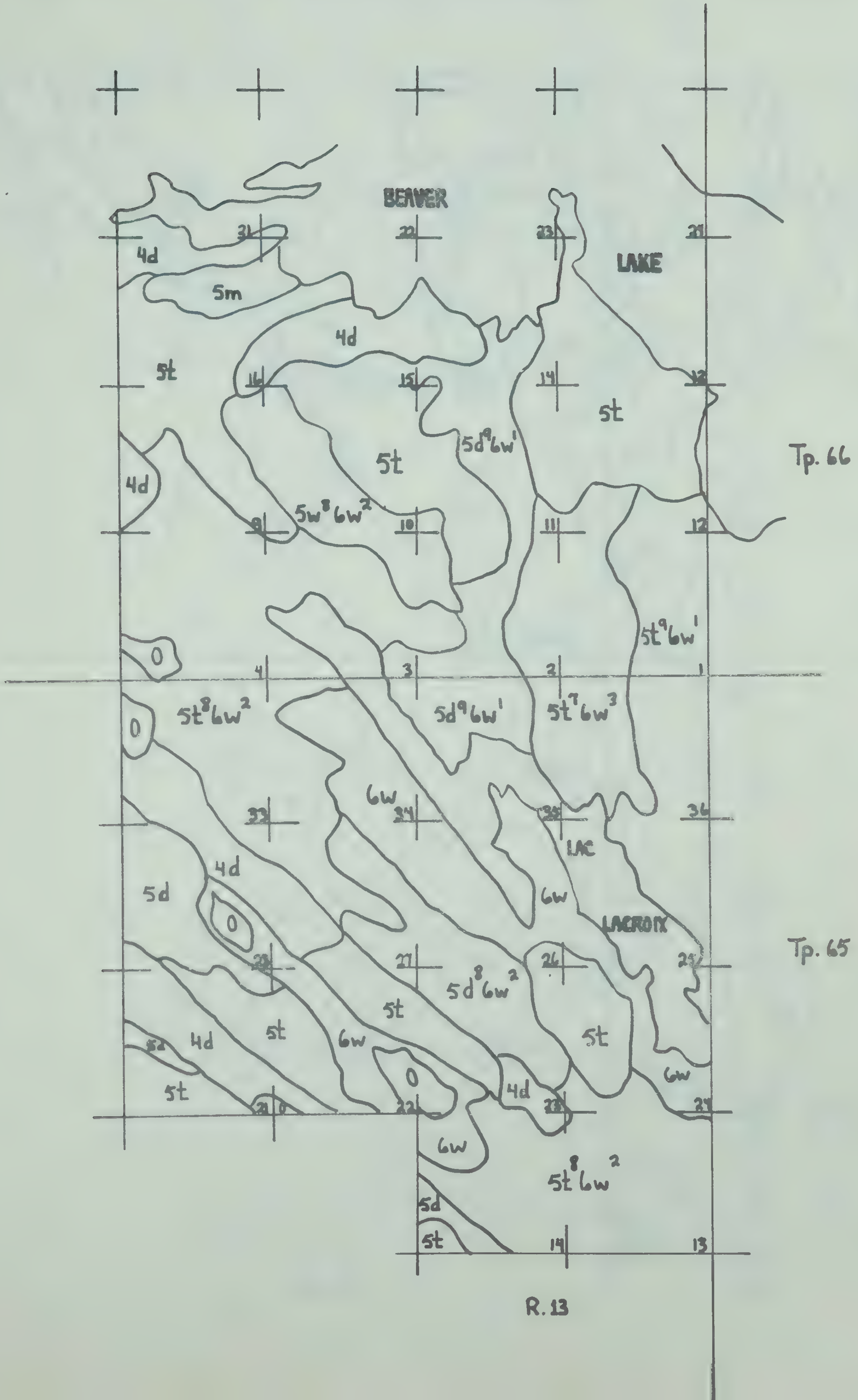


Figure 75 HEART LAKE INDIAN RESERVE NO. 167

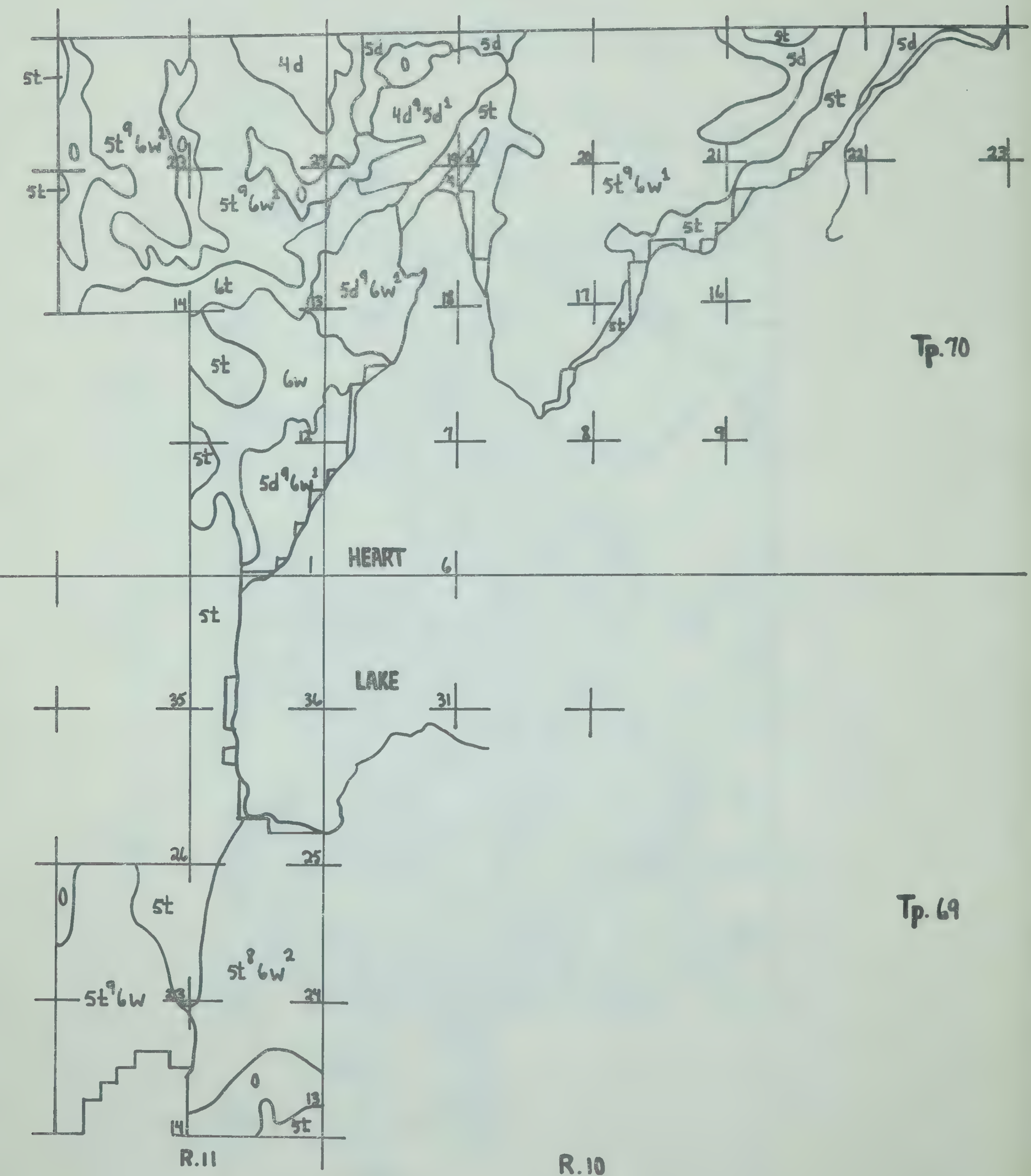


Figure 76 GREGOIRE LAKE INDIAN RESERVES NOs. 176
176A
176B

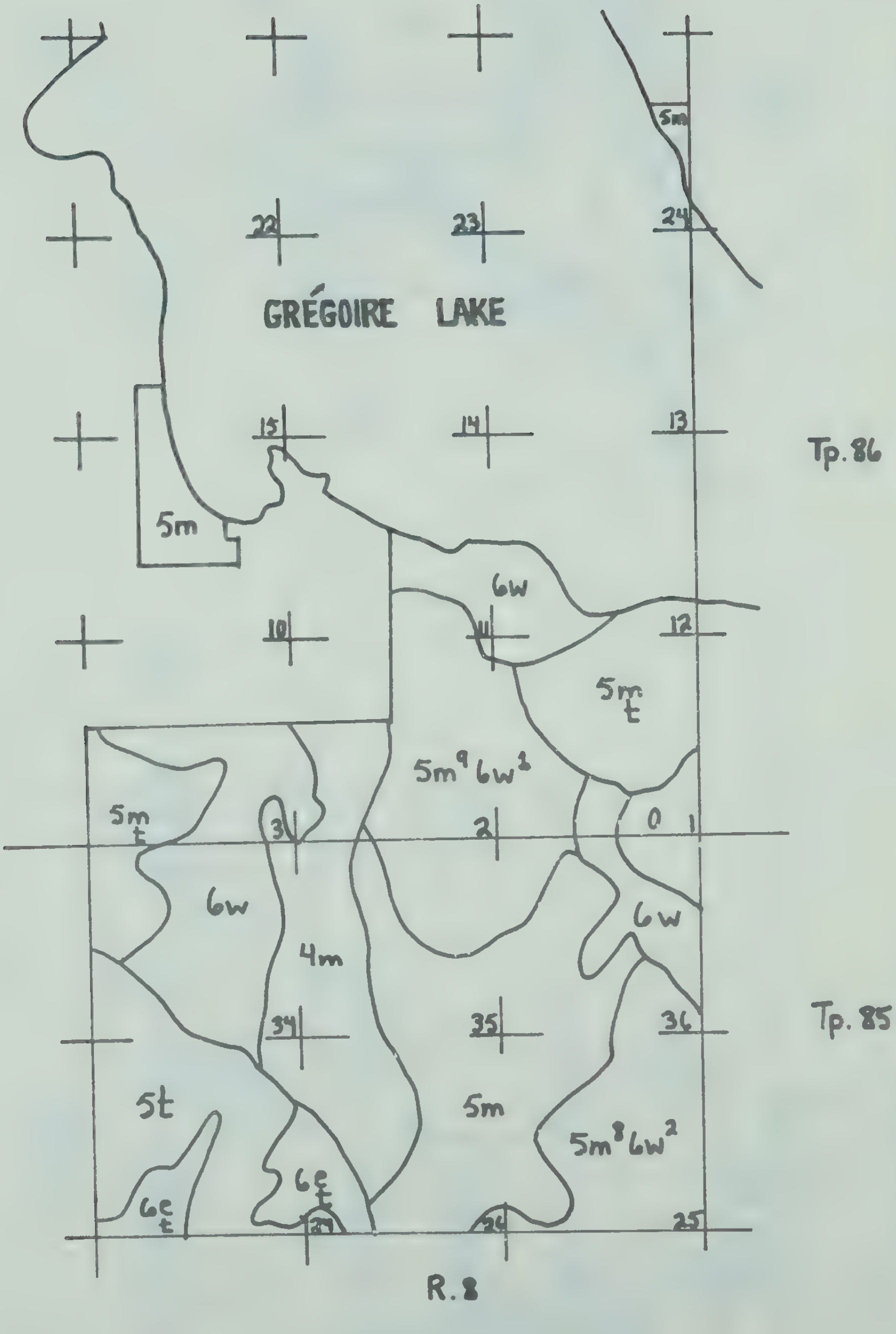


Figure 77

JANVIER INDIAN RESERVE NO. 194

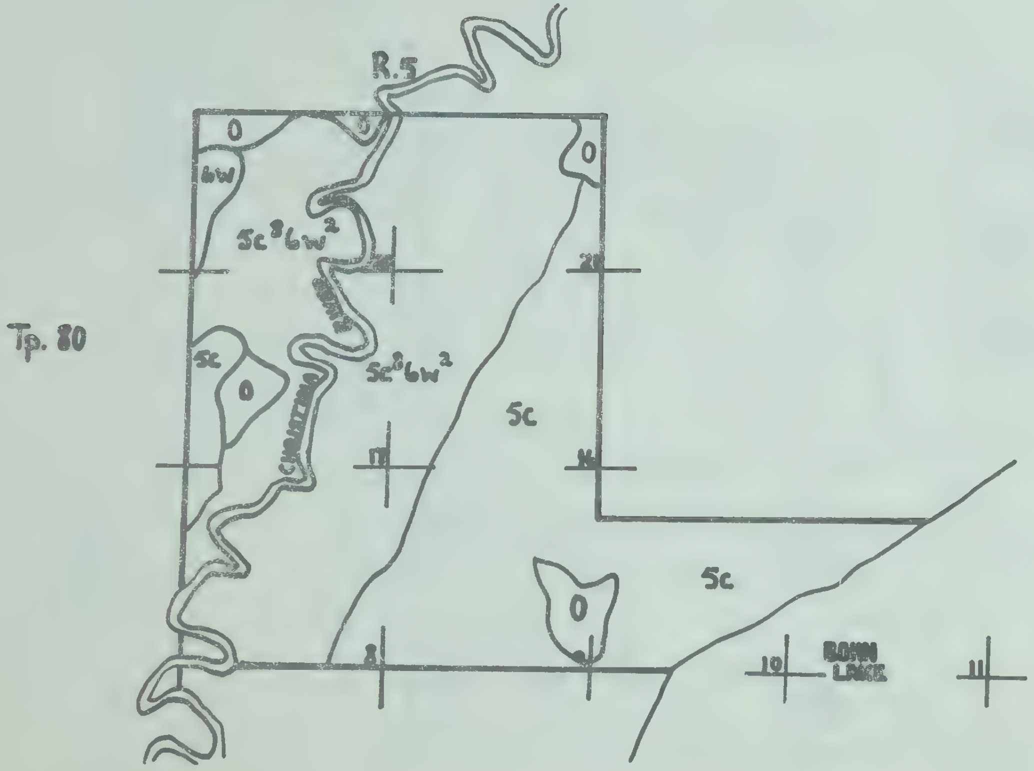


Figure 78

CLEARWATER INDIAN RESERVE NO. 175

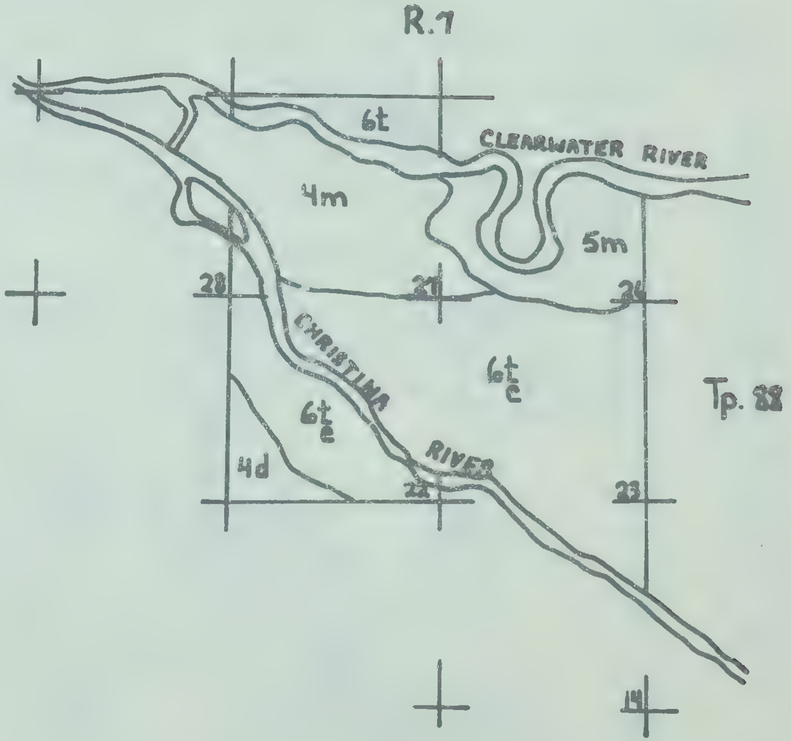


Figure 79

NAMUR RIVER INDIAN RESERVE NO. 174A

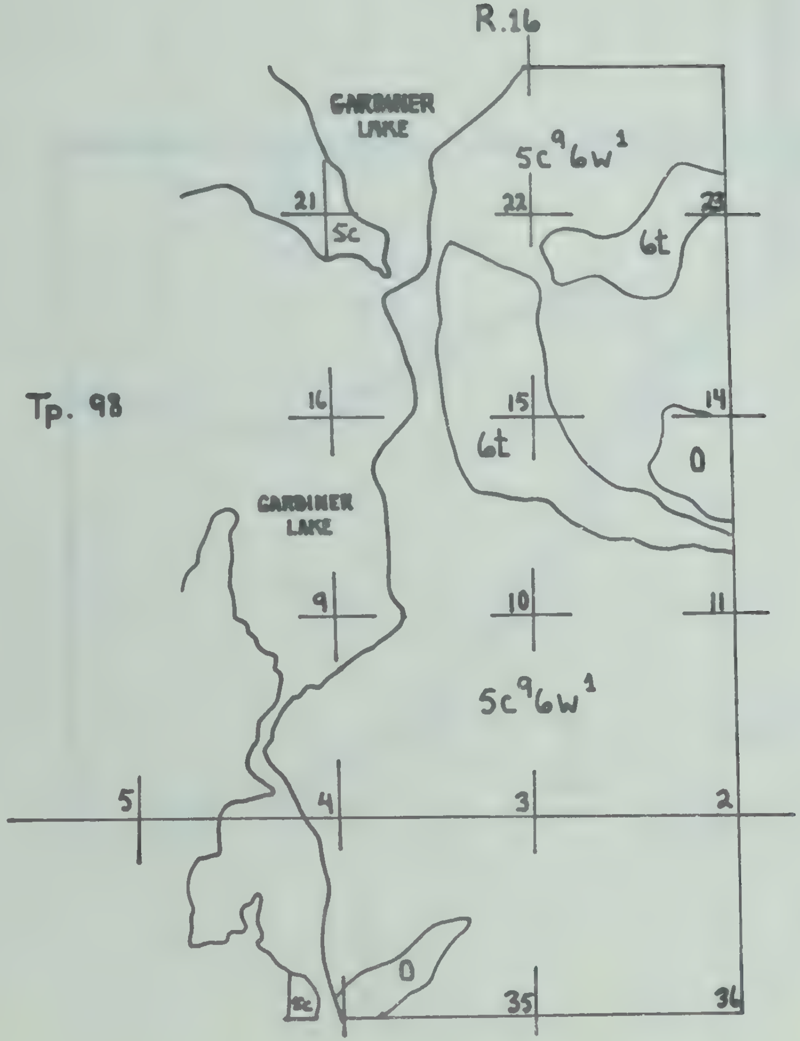


Figure 80

FORT McKAY INDIAN RESERVE NO. 174

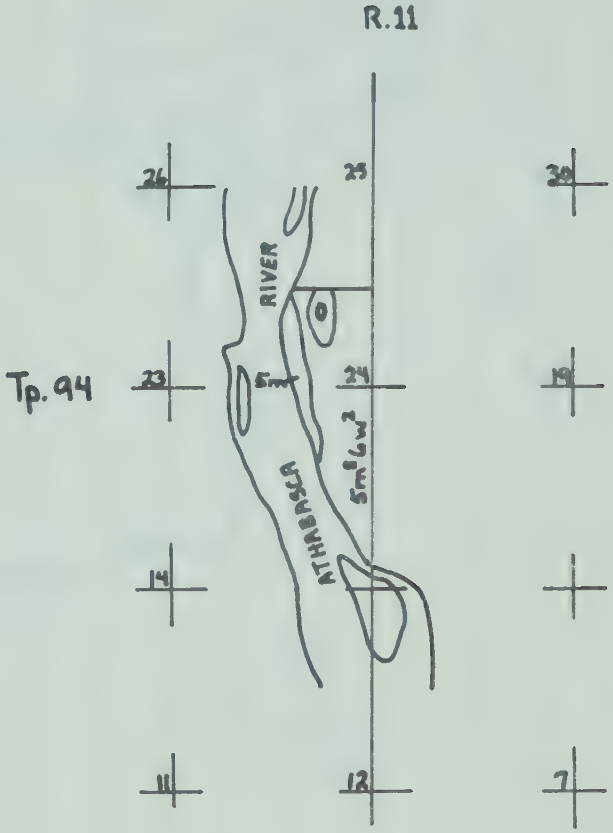
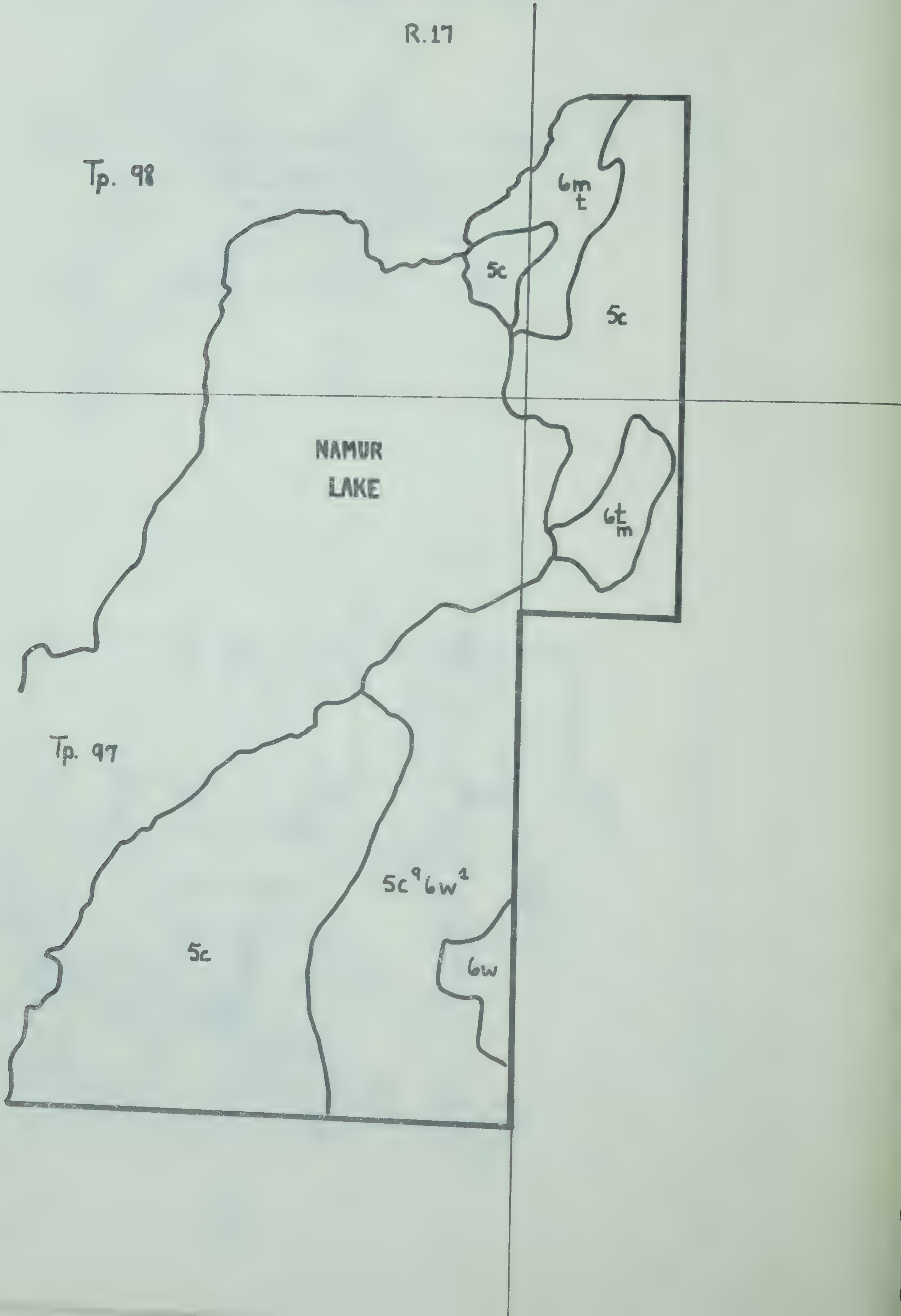


Figure 81 NAMUR LAKE INDIAN RESERVE NO. 174B



Estimates are made on the assumptions that an economic grain production unit requires 400 acres of Number 2 soil, or 500 acres of number 3 soil; and a minimum grazing unit must be 150 head with 25 acres of pasture and 4 acres of forage land per animal.

Fishing[1]

In 1966 there were 335 fishermen earning $1,000 each in C. D. 12. Projecting from the extent of the fishing resource, by 1976, 120 fishermen could earn $3,500 each per year. This regional picture indicates that in 1976 there will probably be fewer Indian fishermen but with better incomes.

Trapping[2]

Four hundred trappers earned $700 each per year in C. D. 12 during 1966. The availability of the resource seems to indicate that the present catch could be doubled without depleting the supply. On this assumption and setting a minimum wage at $3,000, there would be room for only 220 trappers in C. D. 12 by 1976. Following this trend, the number of Indian trappers in C. D. 12 will likely decrease by 1976.

Forestry[3]

Inventories of timber stands on Indian reserves are presently being made in the Alberta Regional Office of Indian Affairs Branch, Canadian Department of Indian Affairs and Northern Development.

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[1] See "Industries" section.

[2] Ibid

[3] Ibid

It should be noted, however, that the reserves in the green zone of C. D. 12 are so small that no viable lumber industry is possible for Indian people unless they take out quotas from the Alberta Department of Lands and Forests for off reserve land. Little information is available on this subject and additional research should be done on the availability of saleable timber adjacent to Indian reserves.

Tourism[1/]

The abundance of lakes in the southern part of C. D. 12 and its relative proximity to Edmonton gives it potential for tourism and recreation developments. According to the ARDA recreation inventory[2/], three lakes bordering on Indian reserves have first and second class beaches: Cold Lake, Frog Lake and Muriel Lake.

Additional information is required on the resources available, and the demand for recreational facilities. Two demand studies are now being done. Dr. Charles Hobart is doing a provincial demand study for the Alberta Department of Youth; and a national demand study is being done by the Canadian Department of Indian Affairs and Northern Development.

C. D. 12 also appears to have great potential for outfitting and guiding. Additional information should be collected on the demand for guides and outfitters and on the interest of Indian people in this occupation.

1/ See "Tourism and Recreation" section.

2/ Ibid.

Costs of Development

1.	Leadership training	$ 450,000
2.	Upgrading	1,810,000
3.	Intercultural education advisors	450,000
4.	Vocational training	1,517,450
5.	Relocation counsellors	900,000
6.	Occupational advisors	300,000
7.	Housing	8,961,500
8.	Land development	4,880,000
	TOTAL*	$19,268,950

* No reliable estimate can be made of development costs for fishing, trapping, forestry, or tourism.

METIS COLONIES IN C. D. 12; PRESENT SITUATION

Four of Alberta's eight Metis Colonies are located in Census Division 12; Elizabeth, Fishing Lake, Kikino and Caslan. The total population of Metis people living in colonies in Alberta is 2,506. The total population living in colonies in C. D. 12 is 1,260, or one-half of the Alberta total. The total area, on the other hand, of Metis colonies in Alberta is 1,953 square miles, but the total area of colonies in C. D. 12 is 567 square miles, or only 29% of the Alberta total.

The populations for the four colonies from 1959 to 1966 are shown in Table 140 . All four colonies have shown a population increase from 1959 to 1964. From 1964 to 1966, the populations of Caslan and Kikino have grown rapidly, while the population of Elizabeth colony has not changed and the population of the Fishing Lake Colony has decreased. A high increase is shown for Kikino from 1962 to 1964, which was caused by the in-migration of 15 to 20 families from the Sandy Lake area in 1963.

Table 140 POPULATION OF METIS COLONIES IN C. D. 12, 1959 - 1966[1/]

Colony	1959	1962	1964	1966
Caslan	176	199	259	384
Kikino	157	194	359	387
Elizabeth	167	190	218	218
Fishing Lake	190	242	296	271
Total	690	825	1,132	1,260

[1/] Abstracted from records of Metis Rehabilitation Branch, Department of Public Welfare, 1966. Special tabulation, Rural Development Research Branch.

The distribution of the popualtion on Metis colonies in C. D. 12, according to age groups, is given in the following table. With the exception of the Fishing Lake Colony, the colonies follow a pattern of 1/3 adult, 1/3 in school, and 1/3 pre-school. The distribution for Fishing Lake, however, is 1/2 adult, 1/3 in school and 1/6 pre-school; this distribution may be partially explained by a larger proportion of old age pensioners on the Fishing Lake Colony.

Table 141 POPULATION BY AGE GROUPS ON METIS COLONIES IN C. D. 12[1/]
1966

	Adult		School Children		Pre-School Children		Total	
	No.	%	No.	%	No.	%	No.	%
Caslan	164	43	113	29	107	28	384	100
Kikino	144	37	131	34	112	29	387	100
Elizabeth	84	38	78	36	56	26	218	100
Fishing Lake	144	53	85	31	42	16	271	100
Total	536	43	407	32	317	25	1,260	100

A comparison of population by age groups for Alberta, C. D. 12 and the Metis Colonies of C. D. 12 is made in the following table.

[1/] Abstracted from records of Metis Rehabilitation Branch, Alberta Department of Public Welfare, special tabulations, Rural Development Research Branch.

Table 142 POPULATION BY AGE GROUPS IN ALBERTA & C. D. 12[1/]
AND METIS COLONIES IN C. D. 12
1966

	Adult		School Children		Pre-School Children		Total	
	No.	%	No.	%	No.	%	No.	%
Alberta	823,438	56	466,197	32	173,568	12	1,463,203	100
C. D. 12	25,269	50	18,242	36	7,124	14	50,635	100
Metis Colonies (C. D. 12)	536	43	407	32	317	25	1,260	100

The distributions for Alberta and for C. D. 12 are similar. For the Metis colonies of C. D. 12, though the proportion of school children is approximately the same as for Alberta and C. D. 12, the proportion of pre-school children is higher and the percentage of adults is lower. This suggests a relatively high birth rate among colony members and an out-migration of adults from the colonies.

Most of the soil on the four Metis Colonies, because of hills and brush, is of the ARDA 5 classification, which if suitable for grazing, with some ARDA 4 soil, which is suitable for forage production. If the total area of the four colonies is improved for pasture use, each colony would provide a living for an average of 18 families. At six persons per family, each colony can support 108 people, plus a few retired old people. (See Table 143.)

[1/] Abstracted from Canada Department of Trade and Commerce, Population By Age Groups, Census of Canada Advance Bulletin A-5, Dominion Bureau of Statistics, 1966 and records of the Metis Rehabilitation Branch, Alberta Department of Public Welfare, special tabulation, Rural Development Research Branch.

Table 143 AREA AND POTENTIAL VIABLE UNITS ON METIS COLONIES IN C. D. 12[1/]

Colony	Total Area (Acres)	Potential Pasture (Acres)	Potential Area For Forage Prod. (Acres)	Potential Cattle Population	Potential Viable Units
Caslan	86,000	71,700	10,250	3,000	20
Kikino	111,000	92,000	9,000	3,500	23
Elizabeth	64,000	57,500	4,000	2,000	13
Fishing Lake	93,000	80,000	5,800	2,500	16
Total	364,000	301,200	29,050	11,000	72

These estimates are made with the assumptions that 25 acres of pasture are required per animal (this may be improved to 15 acres per animal through burning, spraying, ploughing and seeding) and that a herd of 150 animals is required per viable unit. The estimates are made from Canada Land Inventory maps of Metis Colonies in C. D. 12 showing soil capability classifications for agriculture. The legend for these maps, included on the following pages, is as follows:

Capability Classes

1. No significant limitations for use in crops.

2. Moderate limitations, restricting the range of crops or requiring moderate conservation practices.

3. Moderately severe limitations that restrict the range of crops or require special conservation practices.

4. Severe limitations restricting the range of crops or requiring special conservation practices or both.

[1/] Abstracted from records of the Metis Rehabilitation Branch, Alberta Department of Public Welfare, 1967 and unpublished maps of the Canada Land Inventory, Program Development Division, Alberta Department of Agriculture, 1967. Special tabulation Rural Development Research Branch.

5. Severe limitations restricting their capability to producing perennial forage crops, and improvement practices are feasible.

6. Capable only of producing perennial forage crops, and improvement practices are not feasible.

7. No capability for arable culture or permanent pasture.

0 Organic soils.

Capability Subclasses

d - undesirable soil structure and/or low permeability

m - moisture limitation

s - adverse soil characteristics

t - topography

w - excess water

h - salinity

p - stoniness

The following two tables give a breakdown of the agricultural activity (grain production and livestock raising) on the four colonies in C. D. 12 at the present time:

Table 144 LIVESTOCK ON METIS COLONIES IN C. D. 12[1]
1966

Colony	Horses	Cattle	Pigs	Fowl	Sheep
Caslan	68	77	0	126	0
Kikino	170	418	8	278	0
Elizabeth	65	115	0	106	0
Fishing Lake	141	280	0	50	39
Total	444	890	8	560	39

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[1] Abstracted from records of the Metis Rehabilitation Branch, Department of Public Welfare. Special tabulation, Rural Development Research Branch.

Figure 82 CASLAN AREA

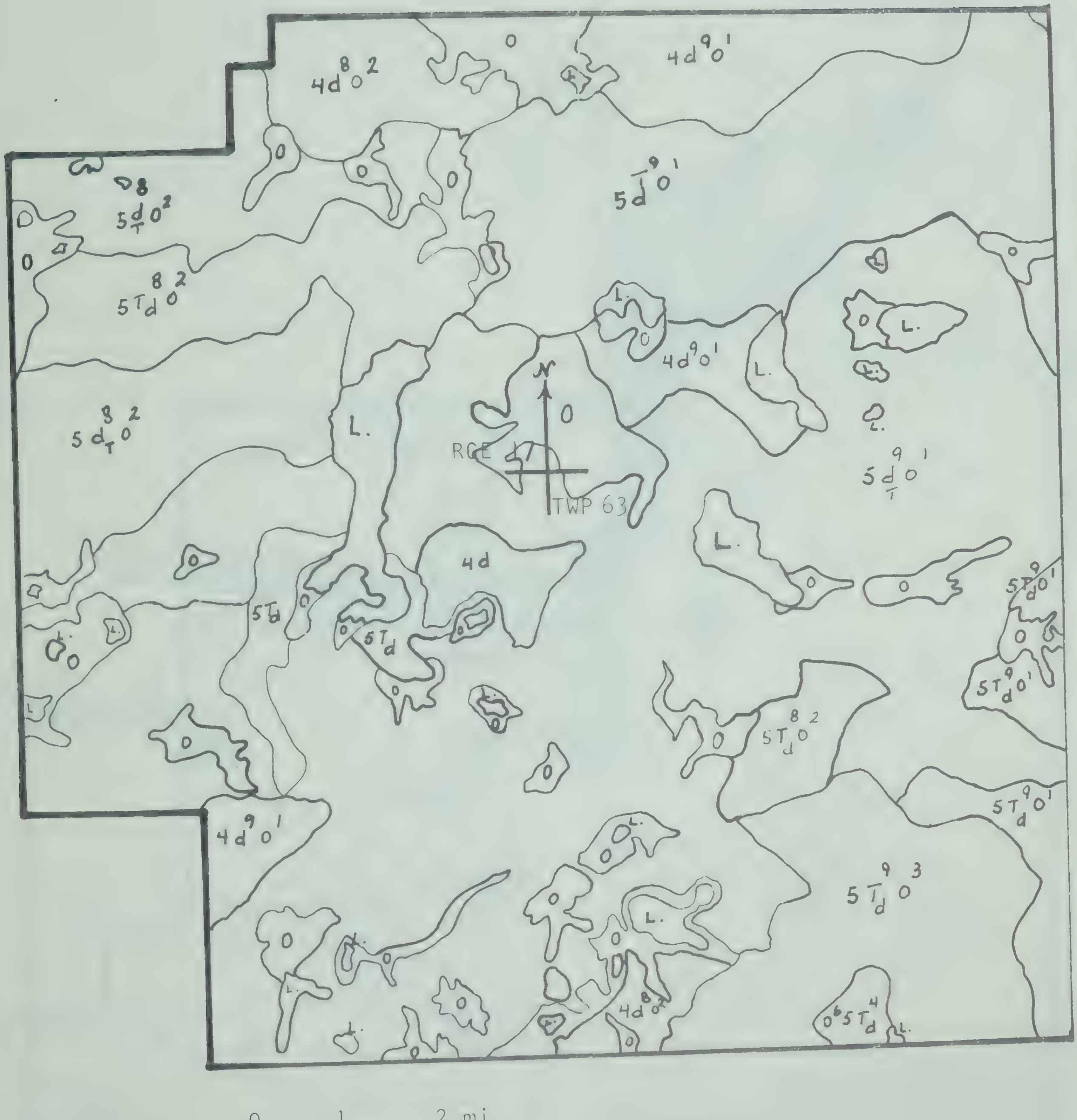

Figure 83

KIKINO AREA

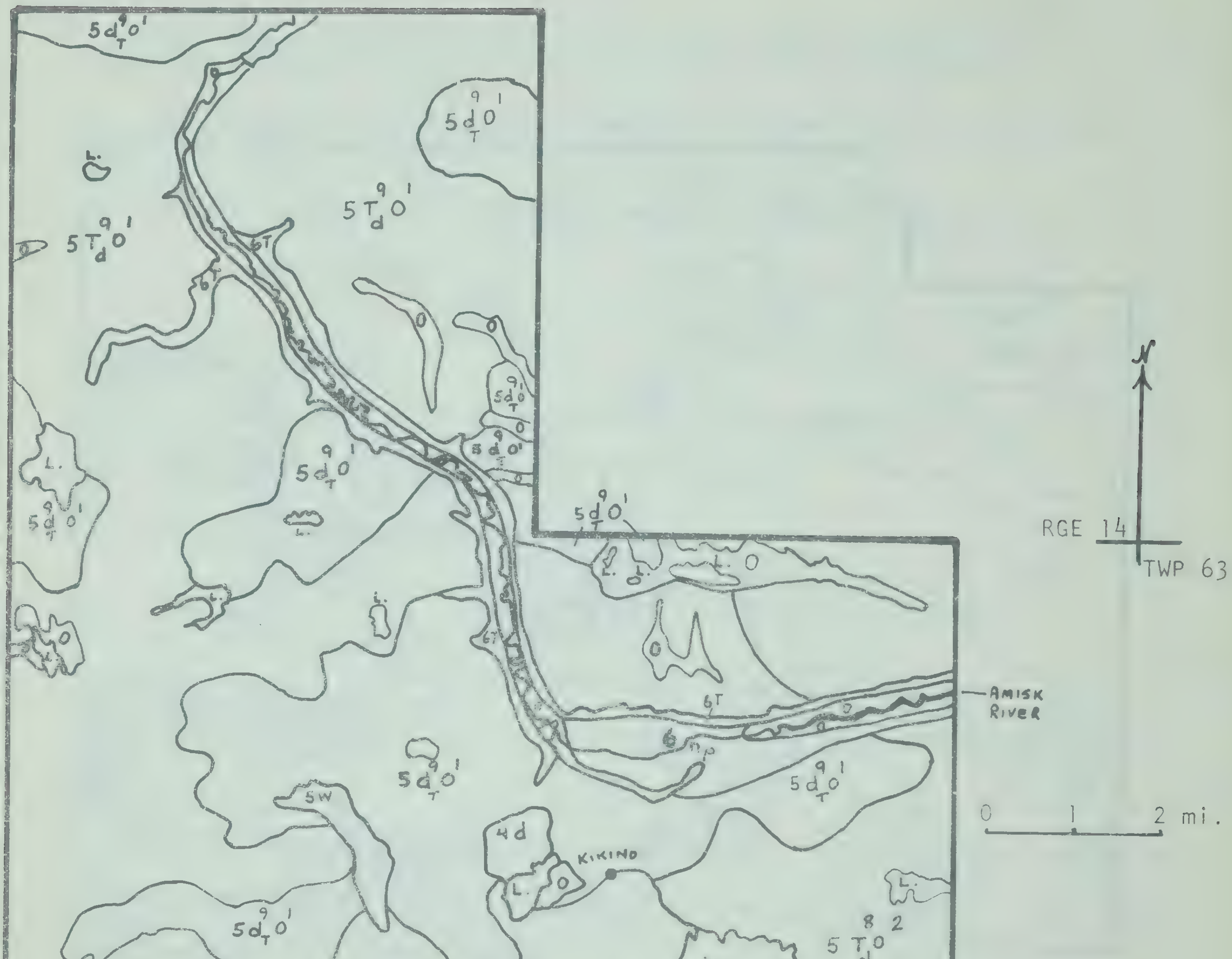

Figure 84 ELIZABETH AREA

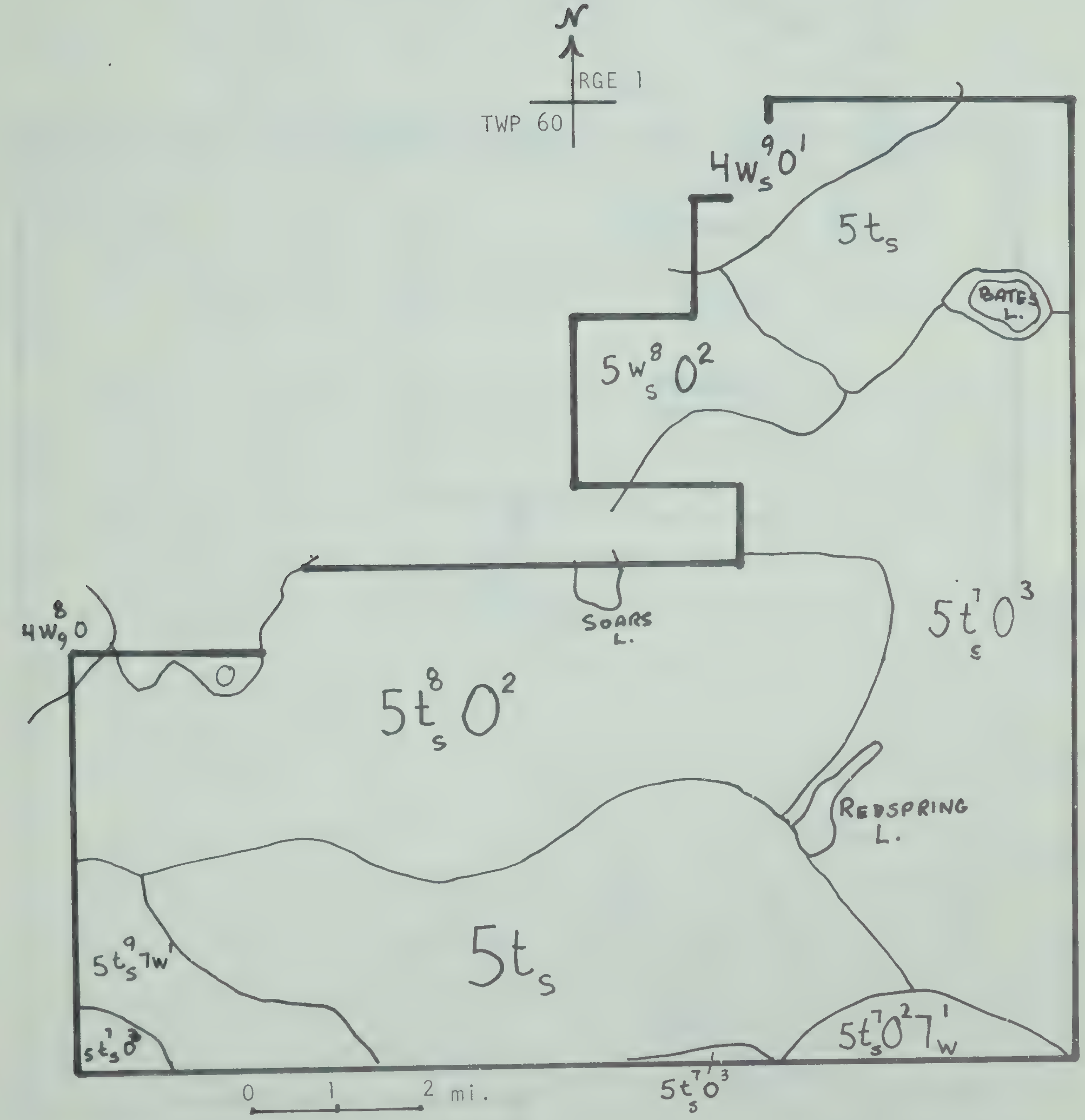

Figure 85 FISHING LAKE AREA

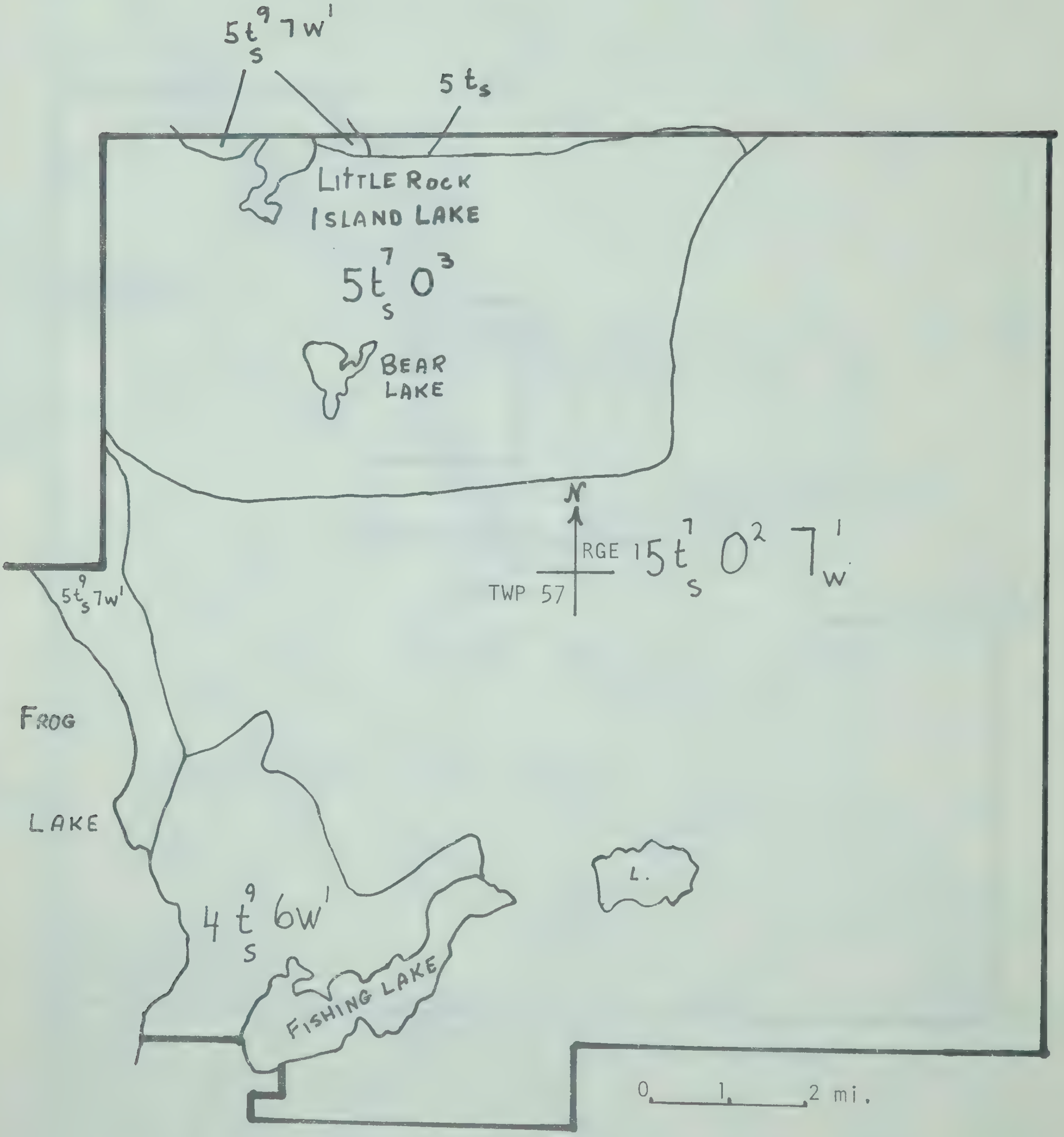

Table 144 AREA AND GRAIN PRODUCTION ON METIS COLONIES IN C. D. 12[1/]

COLONY	ACREAGE Total	 Broken	 Cropped	GRAIN PRODUCTION Wheat	 Oats
Caslan	86,000	331	0	0	0
Kikino	115,000	505	250	35	155
Elizabeth	69,000	388	173	0	75
Fishing Lake	92,000	194	122	0	0
TOTAL	362,000	1,418	545	35	230

The Metis Rehabilitation Branch of the Department of Public Welfare gives financial assistance to the members of Metis Colonies as it is needed. The major payments are for food and clothing, wages for work done on the colony, construction materials, medical care and accomodation for students living off the colony. Other expenses that fall to the Metis Branch are salaries, livestock purchase, machinery purchase and repair, transportation, etc. These have been omitted here, either because they are indirect payments to the colony members, or because they are relatively minor. The totals of these payments per colony in C. D. 12 are given in Table 146. Though Fishing Lake has a higher population than the Elizabeth Colony, the payments for the Fishing Lake Colony are lower than for the Elizabeth Colony. One factor contributing to this may be a higher percentage of older people on Fishing Lake Colony receiving old age pensions.

[1/] Abstracted from records of the Metis Rehabilitation Branch, Department of Public Welfare, Special tabulation, Rural Development Research Branch.

Table 146 MAJOR FINANCIAL ASSISTANCE TO METIS COLONIES IN C. D. 12 [1/]
1963 - 1967

Colony	1963-64	1964-65	1965-66	1966-67	1967 (Oct. 31)
Caslan	33,575	42,230	39,262	56,931	38,152
Kikino	58,765	76,402	70,791	95,060	56,800
Elizabeth	18,143	18,588	38,357	45,106	15,069
Fishing Lake	16,837	16,631	16,846	20,402	13,984
TOTAL	127,320	153,851	165,256	199,499	124,055

The details of these payments are contained in Tables 147 through 150. The cost of construction materials given is 85% of total costs to the Metis Branch for construction materials on the colonies, which is the branch's estimate of the portion used by the members of the colonies for houses, etc. (The remaining 15% is spent on government construction.) Medical costs include medical supplies and doctors' and dentists' fees. Caslan shows a low cost for students' accomodation because students from the Caslan Colony have begun attending high school only in the current year.

Present education facilities for colony children are as follows: Elizabeth and Fishing Lake Colonies have schools on the colonies up to Grade 8. After Grade 8, the students reside in larger centers for the school term until they have completed their high school. At Caslan and Kikino Colonies, the children go to school in Lac La Biche by bus.

Educational levels for adults are available for Kikino Colony (See Table 151. If it may be assumed that these statistics are representative of educational levels on the four Metis Colonies of C. D. 12, 18.0% of all

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[1/] Abstracted from records of Metis Rehabilitation Branch, Alberta Department of Public Welfare, Edmonton, 1967. Special tabulation, Rural Development Research Branch.

adults living on Metis Colonies have had no education. The corresponding figure for Alberta is 2.0% (see Table 152.) A total of 38.8% have less than Grade 5 education, while in Alberta, 7.6% have less than Grade 5. On the Metis Colonies, only 2.8% of adults have a Grade 10 education or better; the Alberta proportion with less than Grade 10 education is 36.2%. To increase the proportion of adults on Metis Colonies with a Grade 10 education to the average proportion for Alberta, 33.4% of adults on colonies need upgrading. This is a total of 179 people.

The Metis Colonies are administered by the Metis Rehabilitation Branch of the Department of Public Health and Welfare. The Metis Branch has a colony manager on each of the colonies.

The members of each colony constitute a settlement association under the Metis Betterment Act. Each family pays an annual levy of $10.00, which is put into the Metis Trust and spent for the betterment of the Metis people. The fee gives entitlement to land, wood, etc.

A local advisory board of three men is elected for a term of 3 years, one member being elected every year. The board members choose a chairman from their own membership for a term of one year.

Board meetings are held monthly. The manager of the colony is present when invited. Local problems are discussed and voted upon, and the board makes recommendations to the colony manager and to the Metis Branch.

Table 147

MAJOR FINANCIAL ASSISTANCE TO CASLAN COLONY[1/]
1963 - 1967

YEAR	WAGES	FOOD & CLOTHING	CONSTRUCTION MATERIALS	MEDICAL	ACCOMMODATION FOR STUDENTS	TOTAL
1967 (Oct. 31)	$ 6,495	$18,286	$8,106	$5,229	$36	$38,152
1966 - 67	$14,952	$25,943	$9,841	$6,195	$ 0	$56,931
1965 - 66	$13,525	$18,982	$1,967	$4,788	$ 0	$39,262
1964 - 65	$12,469	$19,129	$5,312	$5,320	$ 0	$42,230
1963 - 64	$ 7,271	$17,794	$4,078	$4,369	$63	$33,575

Table 148

MAJOR FINANCIAL ASSISTANCE TO KIKINO COLONY[2/]
1963 - 1967

YEAR	WAGES	FOOD & CLOTHING	CONSTRUCTION MATERIALS	MEDICAL	ACCOMMODATION FOR STUDENTS	TOTAL
1967 (Oct. 31)	$12,505	$30,665	$8,824	$4,552	$254	$56,800
1966 - 67	$20,349	$57,697	$7,839	$8,961	$214	$95,060
1965 - 66	$16,409	$39,360	$5,473	$9,015	$534	$70,791
1964 - 65	$22,406	$35.505	$8,047	$9,972	$472	$76,402
1963 - 64	$26,499	$19,033	$5,374	$7,409	$450	$58,765

[1/] Abstracted from records of Metis Rehabilitation Branch, Alberta Department of Public Welfare, Edmonton. Special tabulations, Rural Development Research Branch.

[2/] Ibid.

Table 149

MAJOR FINANCIAL ASSISTANCE TO FISHING LAKE COLONY[1/]
1963 - 1967

YEAR	WAGES	FOOD & CLOTHING	CONSTRUCTION MATERIALS	MEDICAL	ACCOMMODATION FOR STUDENTS	TOTAL
1967 (Oct. 31)	$ 4,930	$ 5,023	$3,633	$ 388	$ 10	$13,984
1966 - 67	$ 3,534	$11,381	$3,276	$1,207	$1,004	$20,402
1965 - 66	$ 7,171	$ 4,164	$3,095	$ 500	$1,916	$16,846
1964 - 65	$ 4,950	$ 5,835	$2,545	$1,274	$2,027	$16,631
1963 - 64	$10,940	$ 1,373	$3,188	$ 64	$1,272	$16,837

Table 150

MAJOR FINANCIAL ASSISTANCE TO ELIZABETH COLONY[2/]
1963 - 1967

YEAR	WAGES	FOOD & CLOTHING	CONSTRUCTION MATERIALS	MEDICAL	ACCOMMODATION FOR STUDENTS	TOTAL
1967 (Oct. 31)	$ 3,801	$ 2,792	$ 6,300	$1,650	$ 526	$15,069
1966 - 67	$11,293	$20,822	$10,551	$1,591	$ 849	$45,106
1965 - 66	$ 7,842	$27,010	$ 1,897	$ 774	$ 834	$38,357
1964 - 65	$ 8,615	$ 6,671	$ 685	$1,289	$1,328	$18,588
1963 - 64	$10,499	$3,926	$ 2,075	$ 757	$ 886	$18,143

[1/] Abstracted from records of Metis Rehabilitation Branch, Alberta Department of Public Welfare, Edmonton. Special tabulations, Rural Development Research Branch.

[2/] Ibid.

Table 151

EDUCATIONAL LEVELS FOR ADULTS ON KIKINO METIS COLONY, 1966 [1]

		Male		Female		Total	
		#	%	#	%	#	%
Primary	0	9	24.4	4	11.4	13	18.0
	1 - 4	8	21.6	7	20.0	15	20.8
	5 - 7	15	40.5	16	45.7	31	43.1
Secondary	1 - 2	5	13.5	6	17.1	11	15.3
	3	0	0.0	1	2.9	1	1.4
	4+	0	0.0	1	2.9	1	1.4
Totals		37	100.0	35	100.0	72	100.0

[1] Fred K. Hatt; Community Opportunity Assessment, Metis of the Lac La Biche Area, Human Resources Research and Development, Government of Alberta, Edmonton, March, 1967.

Table 152

EDUCATIONAL LEVELS FOR ADULTS (20+) IN ALBERTA, 1961 [1] .

		Male		Female		Total	
		#	%	#	%	#	%
Primary	0	7,203	1.8	8,010	2.2	15,213	2.0
	1 - 4	24,479	6.3	17,204	4.8	41.683	5.6
	5 - 7	139,965	35.9	103,221	28.6	243,186	32.4
Secondary	1 - 2	91,676	23.5	87,083	24.1	178,759	23.8
	3	36,988	9.5	45,909	12.7	82,897	11.0
	4+	89,675	23.0	99,517	27.6	189,192	25.2
Totals		389,986	100.0	360,944	100.0	750,930	100.0

[1] Includes University Training. Canada Department of Trade and Commerce; Population, Schooling by Age Group, Census of Canada, Vol. 1, Part 3, Bul. 6. Dominion Bureau of Statistics, Table 152, Ottawa 1961.

Statistics are available on housing standards for the Kikino Colony. These may be considered representative of conditions on all four colonies. The dwellings were rated on the Edwards' Housing Scale, which gives points for exterior finish, heating, lighting, furnishing, etc.[1], with three points added in the present evaluation for deep freezer, refrigerator, and television. (See Table 153.)

Table 153 RESPONDENTS' SCORE ON EDWARDS' HOUSING SCALE FOR KIKINO METIS COLONY[2]
1964

Score	Number	%
0- 5	38	86.3
6-11	5	11.4
12-18	1	2.3
19-24	0	0.0
25-30	0	0.0
Total	44	100.0

No less than 86% of dwellings at Kikino have a score of 5 or less.

Another measure of housing standards is the person to room ratio, which is available for Kikino Colony. The ratings are given in Table 154.

Table 154 PERSONS TO ROOM RATIO FOR KIKINO METIS COLONY[3]
1967

Ratio	Number	%
0- .99	6	13.3
1-1.99	15	33.3
2-4.99	16	35.6
5.0+	8	17.8
Total	45	100.0

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[1] Hobart, Charles, W.; Community Opportunity Assessment, General Report, Human Resources Research and Development Executive Council, Government of Alberta, Edmonton, March 1967, p. 348.

[2] Hatt, Fred, K.; Community Opportunity Assessment, Appendix A, Metis of Lac La Biche Area, Human Resources Research And Development Council, Government of Alberta, Edmonton, March, 1967. p. 23.

[3] Ibid. p. 25.

The average person per room ratio for Kikino Colony is 2.9. This ratio for C. D. 12 is 1.0 and for Alberta is 0.7 (See Table 155.)

Table 155 COMPARISON OF HOUSING IN ALBERTA, C. D. 12 AND KIKINO[1/]
1961

	Person to Room Ratio
Alberta	0.7
C. D. 12	1.0
Kikino Colony	2.9

The Community Opportunity Assessment Study indicated a deficiency in the water supply on Kikino Colony. Wells are contaminated with bacteria, nitrites and nitrates and Lone Pine Creek is contaminated with bacteria.[2/]

The same study indicated a need for road improvement.

Only one of the four colonies is presently serviced by telephone. Kikino has 20 telephones, which were connected December 17, 1967. The cable to the colony has a potential capacity of 64 telephones. The other three colonies have no telephone service.

Electric power lines are extended to the Elizabeth and Fishing Lake Colonies, but few houses are connected. In Caslan, the supervisor's residence only has electricity. Kikino will have elctricity for the store and community hall in the winter of 1967-68.

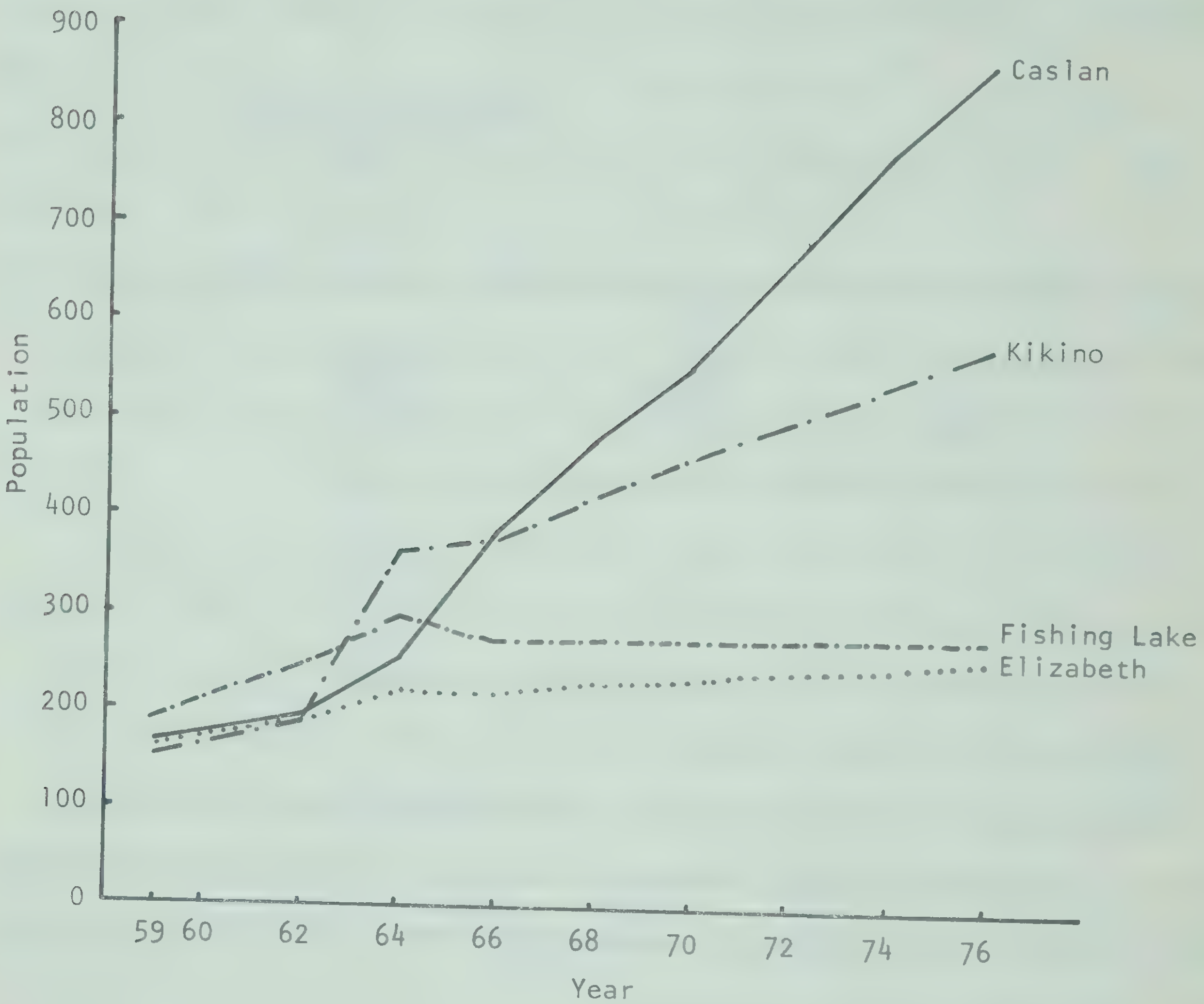
Future Situation

On the basis of past trends, the population of Metis Colonies in C. D. 12 will be 1,950 by 1976. The population of Fishing Lake Colony will remain constant; for Elizabeth Colony, it will increase slightly; but for Caslan and Kikino Colonies, the population will increase greatly. For Caslan from 384 to 858; For Kikino, the increase is from 387 to 566. (See Table 140.)

[1/] Canada Department of Trade and Commerce; General Review, Housing in Canada, Census of Canada, Vol. VII, Part 2, Bulletin 4, Dominion Bureau of Statistics, Table 8. Ottawa, 1961.

[2/] Hatt, Fred, K.; Community Opportunity Assessment, Appendix A, Metis of Lac La Biche Area, Human Resources Research and Development Executive Council, Government of Alberta, Edmonton, March, 1967. pp. 34-37.

Figure 86 POPULATION TRENDS OF FOUR METIS COLONIES IN C. D. 12 [1/]
1959-1966 AND PROJECTIONS* TO 1976



* Projections are made purely on past trends; in terms of capacity of the colonies, they are not realistic.

[1/] Abstracted from records of Metis Rehabilitation Branch, Alberta Department of Public Welfare. Special tabulations, Rural Development Research Branch.

Since the average family size for Metis in C. D. 12 is six, by 1976 the number of family units will increase from 210 to 324. The resource base of the four colonies is capable, if developed, of supporting 72 family units. (See Table 156.)

Table 156

VIABLE FARM UNITS AND FAMILY UNITS
PRESENT AND PROJECTED, (1976)
FOR METIS COLONIES IN C. D. 12[1/]

Colony	Potential Viable Units	Family Units 1966	Projected Family Units 1976
Caslan	20	50	143
Kikino	23	74	94
Elizabeth	13	31	42
Fishing Lake	16	56	45
Total	72	211	324

Problems

1. Inadequacy of resources to support projected populations.
2. Low education levels of adults.
3. Sub-standard housing.
4. Electricity in few homes.
5. Communications limited, e.g. telephones, television.
6. Deficient water supplies and sewage facilities.
7. Some students must live away from home after Grade 8.

[1/] For footnote, see previous page.

1. Leadership Training*

The purpose of a rural development program is to raise the living level of low-income people, who are usually untrained or insufficiently educated and underemployed or unemployed. The first step toward this purpose must therefore be, to involve these people in the development program. To get this involvement, it is recommended that a leadership training program be implemented on Metis colonies in C. D. 12 to give colony members information on their situation in the development area and to provide them with an experience in community organization and self-improvement.

The training program may preferably take place on the colonies. Initially, training could be done by professional people, and progressively taken over by people of Indian culture, language, etc. In the final stage, the professional educators might be advisors or guides for the native people.

If 10% of the adult population take leadership training, 54 people would enroll in the program. One educator at $15,000 per year will cost $150,000 for the 10-year program.

2. Community Development*

The people of Elizabeth and Fishing Lake Colonies with perhaps the people of the Frog Lake Indian Reserve should be informed of the advantages of the community development approach to social and economic problems and be encouraged to ask for a C.D.O. from the provincial government. One C.D.O. at $15,000 per year will cost $150,000 for the 10-year program.

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* See "Educational" section.

3. Upgrading*

Adult education programs should upgrade colony population to the average education levels for Alberta. A total of 179 adults will need upgrading for an average of one year, at $2,000 per year. The estimated total cost of this program is $358,000.

4. Vocational Training and Relocation*

Vocational training and relocation programs. Land development on the four Metis colonies will support a total of 72 families. However, there are presently 213 families living on Metis colonies in C. D. 12. The surplus of 141 families will need vocational training and relocation. Retraining requirements are given in the following table.

Table 157 RETRAINING COSTS, METIS COLONIES, C. D. 12[1/]

Colony	Potential Units	Families	Surplus	Retraining Costs
Caslan	20	50	30	$105,000
Kikino	23	74	51	$178,500
Elizabeth	13	33	20	$ 70,000
Fishing Lake	16	56	40	$140,000
Total	72	213	141	$493,500

Costs are estimated on the assumption of a $70 per week training allowance plus $600 per year for tuition and books. The total estimated retraining costs are $493,500.

5. Land Development**

Development of land potential for grazing enterprises by colony in C.D. 12

** See educational section.

** See agricultural section

[1/] Estimates, Rural Development Research Branch.

is given in the following table:

Table 158 LAND DEVELOPMENT ON METIS COLONIES IN C. D. 12[1/]

Colony	Proposed Hay Land (Acres)	Estimated Cost (Clearing & Breaking)	Proposed Pasture (Acres)	Estimated Cost (Fencing)
Caslan	10,250	$ 410,000	71,700	$ 79,000
Kikino	9,000	$ 360,000	92,000	$ 88,000
Elizabeth	4,000	$ 160,000	57,500	$ 65,000
Fishing Lake	5,800	$ 232,000	80,000	$ 61,000
Total	29,050	$1,162,000	301,200	$293,000

The costs for development in Table 158 are: hay land $40 per acre, and $600 per mile of fencing. The fencing estimate is based on the assumption that the amount of cross fencing will be equal to the perimeter fencing. The estimated total cost of land development will be $1,455,000. Because of the serious shortage of farm land suitable for hay production on Elizabeth Colony, it is also recommended that four sections of land, held in reserve for the Elizabeth Colony by the Department of Lands and Forests, be given to the colony. These are sections 31 and 32 and sections 5 and 6 township 60 range 1 west of the fourth meridian.

6. Machinery

Purchase of machinery for hay production. At a cost of $15 per acre, the total estimated cost is $427,500.

[1/] Abstracted from unpublished maps of the Canada Land Inventory, Program Development Division, Alberta Department of Agriculture. Estimates, Rural Development Research Branch.

7. Livestock

Purchase of livestock for ranching enterprises for 72 units: A total of 7,500 cows and bulls will be required at $250 per head for a total cost of $1,875,000.

8. Housing

Out of 213 families now living on colonies, only 72 will remain as ranchers. To improve the standard of their homes to the Alberta standard, according to person to room ratio, 84.7% of these homes or 61 houses will need rebuilding or improvement. At $8,000 per home, this cost will be $488,000.

The families who receive vocational training will settle in towns and cities. If the 141 families who take retraining need new houses at $15,000 per house, the cost will be approximately $2,115,000.

It is recommended that low interest housing loans be made available to relocating families, to facilitate their settlement and adjustment in towns and cities.

9. Electricity*

Electric power should be provided to the 72 families remaining on the four colonies. At $1,500 per home, the total cost will be approximately $108,000.

10. Water and Sewage*

Water and sewage facilities will be required by 15.3% of houses which do not need rebuilding or improvement. A total of 11 homes will require the installation of water and sewage facilities at $3,000 per home. The total estimated cost will be $33,000.

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* See "Family Housing" section.

11. Telephones

Telephone service should be extended to the homes on Caslan, Elizabeth and Fishing Lake Colonies. A.G.T. could be requested to install a centrally located pay station until full service can be provided.

12. School Bus

Bus transportation is required for secondary school students from Elizabeth Colony to Grande Centre and from Fishing Lake to Elk Point.

13. Personnel Requirements

Intercultural education advisors:	1	Cost:	$15,000
Agricultural advisor:	1	Cost:	$12,000
*Total adjustment counsellors:	5	Cost:	$50,000
*Family counselling on colonies:	2	Cost:	$20,000

Total cost for personnel for the 10-year period to 1976 will be $970,000.

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* See "Welfare" section.

COST OF DEVELOPMENT

*1.	Leadership training	$ 150,000
2.	Community development	$ 150,000
*3.	Upgrading	$ 358,000
*4.	Vocational training & relocation	$ 493,500
**5.	Land development	$1,455,000
**6.	Machinery	$ 427,500
**7.	Livestock	$1,875,000
***8.	Housing	$2,603,000
***9.	Electricity	$ 108,000
***10.	Water and sewage	$ 33,000
11.	Personnel	$ 970,000
	Total	$8,623,000

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* Included in "Education" section.

** Included in "Agriculture" section.

*** Included in "Family Housing" section.

THE NEED FOR ADDITIONAL RESEARCH

The purpose of this study was to enumerate the resources of the area, assess the present and potential uses of these resources and recommend certain developmental programs which would lead to the stated objectives of ARDA as contained in the Federal-Provincial Rural Development Agreement. As such, the study did not encompass a comprehensive examination of the total regional economy, but instead, concentrated on the primary industries and the shift of labour that is likely to occur in the next ten years. However, since the welfare of the primary sector is closely allied to the other sectors of the economy, a brief examination of the other sectors was necessary to anticipate their effects and to provide an indication where mutual adjustments were compatible. Consequently, while the study may provide information on which an ARDA program may be developed, it is still somewhat fragmented in terms of overall regional development.

Because of relatively low incomes and since the financial requirements stipulated in this report far exceed the amount of monies available from ARDA, it would appear likely that the area will be designated as eligible for assistance from the Fund for Rural Economic Development. Accordingly, additional research will be required because of the extended scope of the FRED program as compared to ARDA. For this reason, an indication of additional research is warranted. Furthermore, there are a number of areas inadequately covered because of time and data limitations, even according to the ARDA objectives. These areas will be enumerated together with the expanded horizon of research required for the FRED program.

The scope of additional research requirements will be tempered by the objectives which are established for regional development, and whether or not reference is made to non-controllable factors at a regional level but which might be conrollable at the national level. The amount of research required will also depend on the depth of investigations and the amount of co-ordination of data collection between agencies.

The research listed below is minimal in terms of the previous discussion. It alludes to more inputs into human resources, physical resources, and facilities than to changes in institutions and inter-regional relationships. For instance, the institutional effect of the 'reserve' may have an influence on the income, initiative and aspiration levels of Indians, and should be investigated, although adjustments are considered beyond the scope of the Rural Development Program. Similarly, the federal subsidy on dairy products may influence the comparative advantage of the region to produce this commodity, but is not included in the suggestions for research that follows.

Broad groupings of suggestions may be conceptualized into:

- training programs, manpower guidance and adult education
- alternative uses of land
- capital grant or loan programs
- labour mobility programs
- productivity increases
- supporting services - e.g. health, transportation, power
- etc.

These would be useful in referring to programs overlapping various sectors of the economy. It would be convenient to discuss farm consolidation in agriculture and training programs in education, when in fact, the two cannot be considered separately. Nevertheless, an attempt is made to list the suggestions by sector with the understanding that there will be considerable inter-sectoral influences.

Regional Accounts

While regional data is limited in many areas, there could be greater emphasis placed on this field by all government departments. Associated with this type of information are:

Input-Output Analysis

There is probably sufficient data available to do a simplified input-output analysis on a region, or on a number of sectors within the region. This type of information would be useful to many agencies as well as helpful in regional planning.

Statistical Deficiencies

Associated with the general subject of regional accounts is the area of statistical deficiencies. Consideration could be given to this field to suggest procedures for overcoming these deficiencies. In some cases, information is available, except the boundaries of one area are not co-terminous with another and therefore have limited applications for comparisons. In other instances, it is simply a matter of the department not compiling available information.

Inter-Regional Comparisons

Since each region is, in effect, competing with each other in space, the planning of the economy of an area should take into consideration the locational factors in which an area enjoys a comparative advantage. The greater understanding of these factors would permit the development of resources in order of priority between regions.

Evaluation

The evaluation is necessary to each project undertaken in connection with the Overall Economic and Social Development Plan.

Agriculture

- regional comparative advantages for the production of farm products
- additional production cost studies
- the relative quantities of land, labour and capital required to earn $1,000 from each of a variety of agricultural enterprises for selected areas
- input-output analyses for agriculture in various regions
- marketing of farm products
- methods of disseminating agricultural information
- feasibility of market gardening in the Ft. Chipewyan area

Optimum Location of Agricultural Service Centres

- grain elevators
- feed mills

- seed cleaning plants
- creameries
- fertilizer and chemical outlets
- etc.

Forestry

- structure of the industry
- marketing of forest products
- utilization of Aspen and Black Spruce
- utilization of trimmings
- economics of scale
- productivity per man in various regions
- location of future forestry roads, etc.

Mining

- analysis of peat moss bogs for suitability of commercial production
- geological surveys of the north
- economic analysis of mining gypsum in Wood Buffalo National Park
- feasibility of various associated industries in connection with extracting oil from the oil sands

Fishing and Trapping

- structure of the industries
- marketing of fish
- marketing of fur
- sustained yield of fish from the larger lakes
- possibility of some type of quota system on commercial fishing

- potential harvest of fur bearing animals
- feasibility of a fish processing plant on Lake Athabasca
- capital requirements of fishermen and trappers
- present distribution of income from the industry
- contribution of fishing and trapping to the local economy

Manufacturing

- feasibility of pelletizing hay
- feasibility of wood manufacturing plants, e.g. furniture, sash and door, bee hives, ties, etc.
- feasibility of other resource based on footloose industries

Transportation

- volume of traffic, kinds of commodities, freight rates, etc.
- improvement to barge loading facilities
- advisability of extension to transportation grids
- effect of transportation on development
- studies on new resource roads:
    - Ft. McMurray and Ft. Chipewyan
    - Wabasca to Ft. McMurray

Private Finance

- availability of credit to all types of firms, particularly the small privately owned businesses
- the influrence of interest rates and money markets on local development

Communication

- identification of major means of communication
- additional facilities required

Power

- long term demand projections for power
- potential supply
- effect of power on the development of the area

Education

- investigation of factors responsible for low participation rate, high drop-outs, and low parental support in selected areas
- curriculum for native students
- formats for adult education and mobility programs

Health and Welfare

- relationship of welfare to aspiration levels
- advisability of wages in lieu of welfare, where possible
- migration patterns
- housing inadequacies
- leadership structures in various levels of society

Indians and Metis

There is a large field in this category covering assessment of reasons for high drop-out rates in education to the measurement of success of relocation projects.

- institutional factors related to the development of Indian reserves, Metis Colonies
- methods of increasing participation of apathetic groups
- structural changes in government to facilitate more co-ordination

Governments

The optimum structure of local government agencies which has responsibility of implementing a regional plan is subject to further study. Involved, is the role that should be assigned to different agencies, the role of local people, methods of selecting local administrators, etc.

- total revenues and expenditures in a region by all levels of government, ability to pay, debt management, arrears, tax rebates, tax incentive programs, etc.

Co-ordination of Government Agencies

Another item requiring further investigation is the co-ordination of government agencies at all levels. This is particularly important in terms of regional planning.

The estimated cost of additional research is $2,000,000, $500.000, of which should be allocated for evaluation.

It is suggested that the Rural Development Research Branch act as an organizing group for additional research within the Rural Development Areas, in order to maximize the use of existing data, avoid duplication of work and provide guidance in terms of sources of data, local situations and resource personnel.

Oct 23/74